



PIONEER

Pioneer Energy Services

DUAL INDUCTION LOG

Company MURFIN DRILLING COMPANY, INC.
Well SHARP 'C' #1-6
Field UNNAMED
County CHEYENNE
State KANSAS

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Field UNNAMED
County CHEYENNE State KANSAS

Location: API #: 15-023-21539-00-00
2230' FSL & 2310' FWL
SEC 6 TWP 3S RGE 40W
Permanent Datum GROUND LEVEL Elevation 3449'
Log Measured From KELLY BUSHING
Drilling Measured From KELLY BUSHING
Other Services CNL/CDL MEL/BHCS
Elevation K.B. 3454'
D.F. N/A
G.L. 3449'

Date	3/8/2020
Run Number	ONE
Depth Driller	5193'
Depth Logger	5194'
Bottom Logged Interval	5193'
Top Log Interval	00
Casing Driller	8.625" @ 345'
Casing Logger	345'
Bit Size	7.875"
Type Fluid in Hole	CHEMICAL
Salinity, ppm CL	800
Density / Viscosity	9.2 60
pH / Fluid Loss	10.5 6.6
Source of Sample	FLOWLINE
Rm @ Meas. Temp	1.2 @ 64
Rmt @ Meas. Temp	.90 @ 64
Rmc @ Meas. Temp	1.62 @ 64
Source of Rmf / Rmc	CHARTS
Rm @ BHT	.60 @ 128
Operating Rig Time	4 HOURS
Max Rec. Temp. F	128 DEGF
Equipment Number	P-108
Location	HAYS
Recorded By	J. HENRICKSON
Witnessed By	ROBERT HENDRIX

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All interpretations are opinions based on inferences from electrical or other measurements and Pioneer Wireline Services, LLC cannot and does not guarantee the accuracy or correctness of any interpretation, and Pioneer Wireline Services, LLC will not be liable or responsible for any loss, costs, damages, or expenses incurred or sustained by anyone resulting from any interpretation made by any of our officers, agents or employees.

Comments

N/A DENOTES NOT AVAILABLE OR NON-APPLICABLE.
ST. FRANCIS KANSAS
WEST TO HWY 27, 4 NORTH TO S ROAD, 1/2 WEST
SOUTH INTO

Log Measured From: KELLY BUSHING 5 Ft. Above Permanent Datum

THANK YOU FOR USING PIONEER ENERGY SERVICES
www.pioneerenergy.com 785-625-3858

Your Pioneer Energy Services Crew	This Log Record Was Witnessed By
Engineer: J. HENRICKSON	Primary Witness: ROBERT HENDRIX
Operator:	Secondary Witness:
Operator:	Secondary Witness:
Operator:	Secondary Witness:

Log Variables

DatabaseC:\ProgramData\Warrior\Data\murfin_sharp_c_1_6.db
 Dataset field/well/stackml/pass3.1/_vars_

Top - Bottom

A	BOREID in	BOTTEMP degF	CASEOD in	CASETHCK in	FLUIDDEN g/cc	M	MATRXDEN g/cc
1	7.875	100	5.5	0	1	2	2.71
NPORSEL	PERFS	SNDERR mmho/m	SNDERRM mmho/m	SPSHIFT mV	SRFTEMP degF	SZCOR	TDEPTH ft
Limestone	0	0	0	290	50	Off	5194

Sensor	Offset (ft)	Schematic	Description	Length (ft)	O.D. (in)	Weight (lb)
GR	44.50		GR-M&W (89-M&W)	3.00	3.50	50.00
CNLSC CNSSC	41.40 40.65		CNT-M&W (tk10-MW)	5.50	3.50	100.00
LSD DCAL SSD	32.35 32.33 31.85		CDL-M&W (934-229)	8.50	4.00	250.00
MCAL MI MN	20.87 20.87 20.87		ML-PSI UDM ML (UDM-01) Stackable Microlog Tools	11.50	4.00	215.00
RLL3 RLL3F	15.80 15.79		DIL-M&W (55-222)	18.50	3.50	220.00
CILD	8.00					

CILM 4.70

SP 0.20

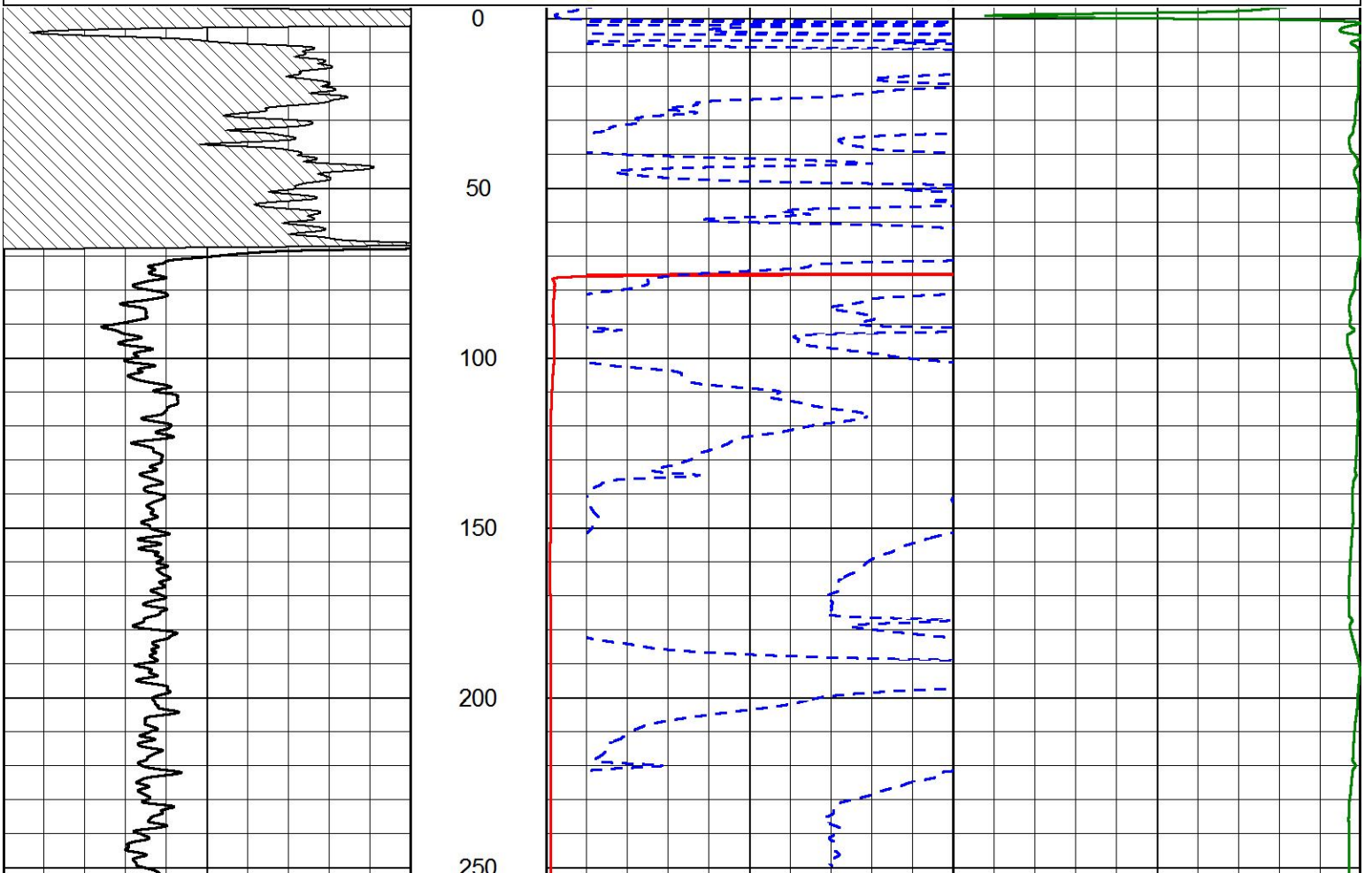
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 Total weight: 835.00 lb
 O.D.: 4.00 in

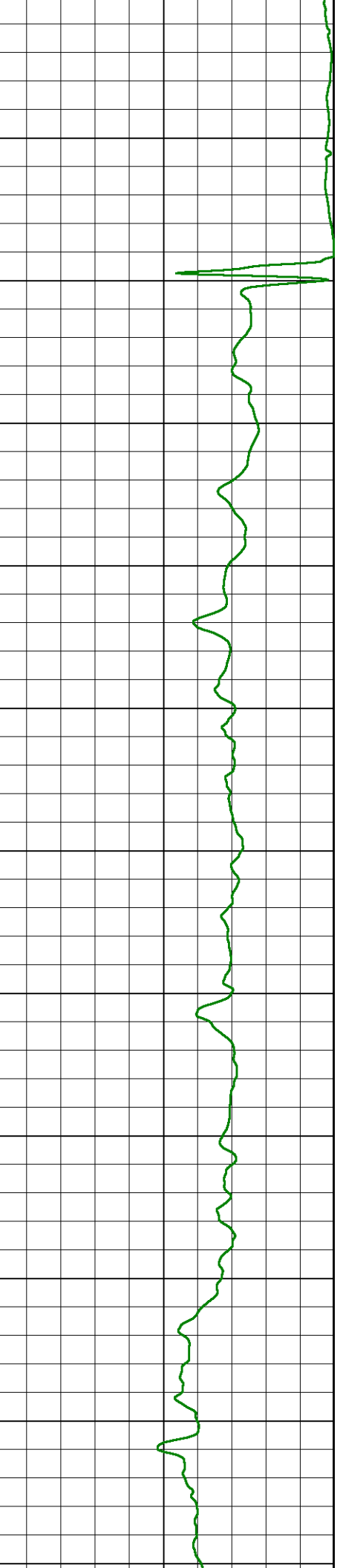
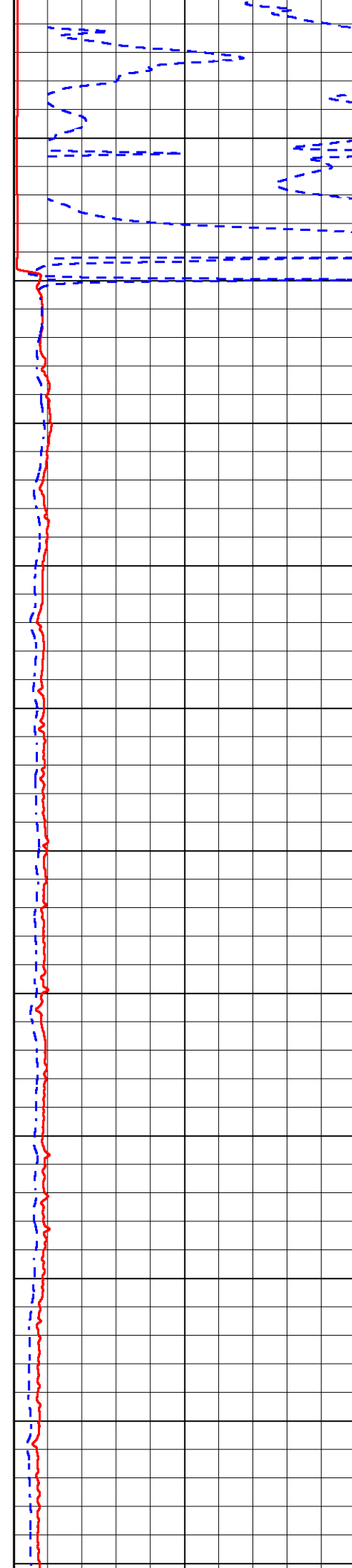
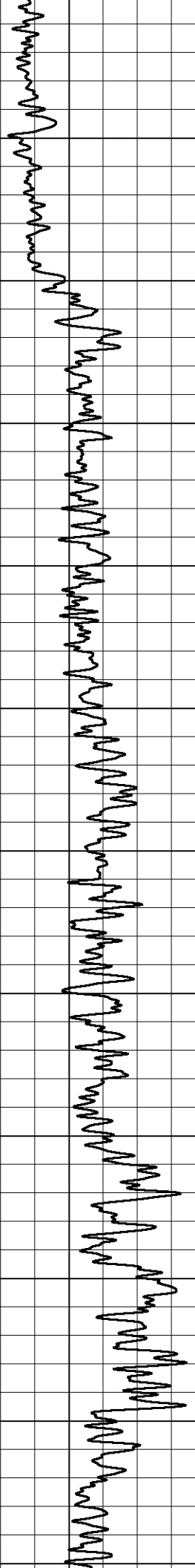


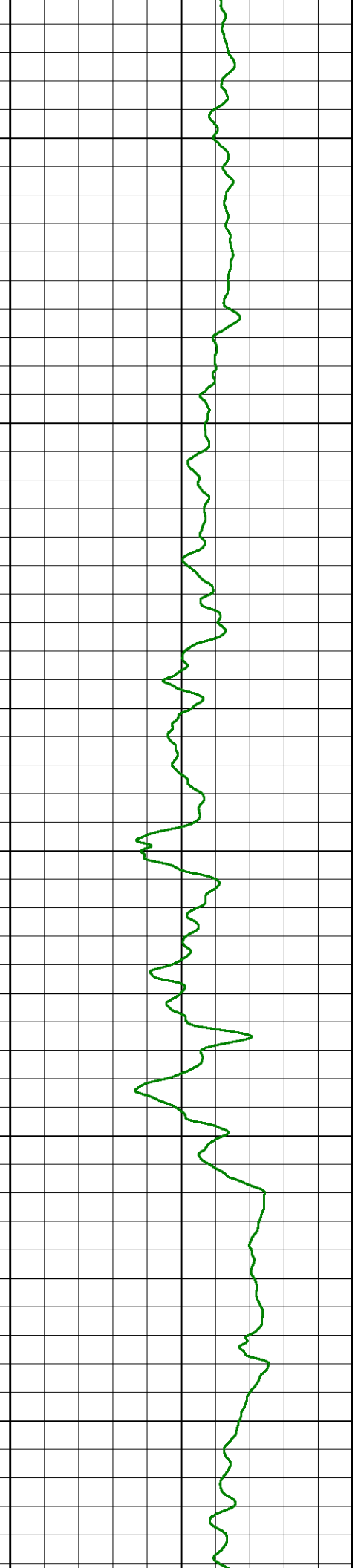
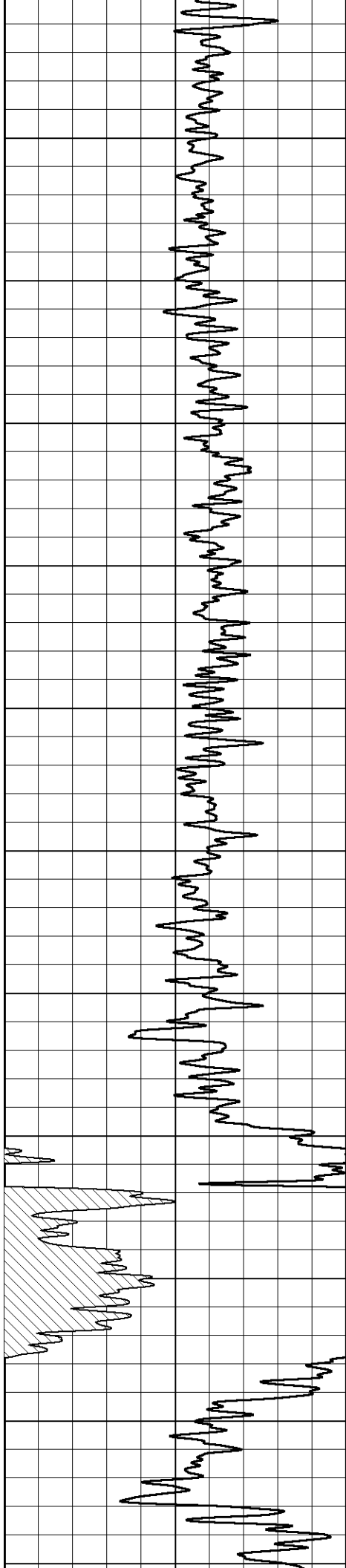
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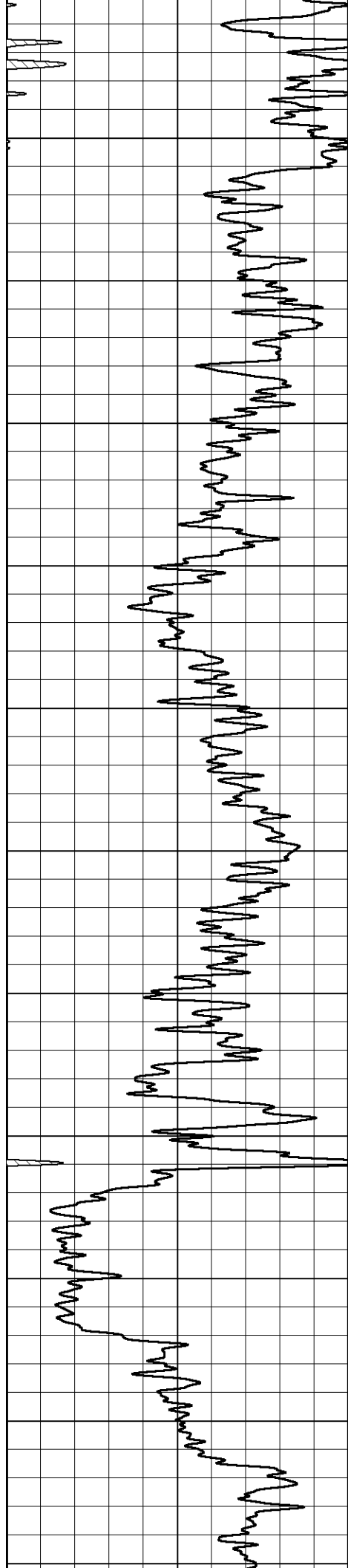
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 Dataset Pathname stackml/pass3.1
 Presentation Format dil2in
 Dataset Creation Mon Mar 09 01:24:08 2020
 Charted by Depth in Feet scaled 1:600

0	GAMMA RAY (GAPI)	150	2000	CILD (mmho/m)	0
			0	RLL3 (Ohm-m)	50
			0	DEEP RESISTIVITY (Ohm-m)	50
			50	RLL3 (Ohm-m)	200
			50	RILD (Ohm-m)	200

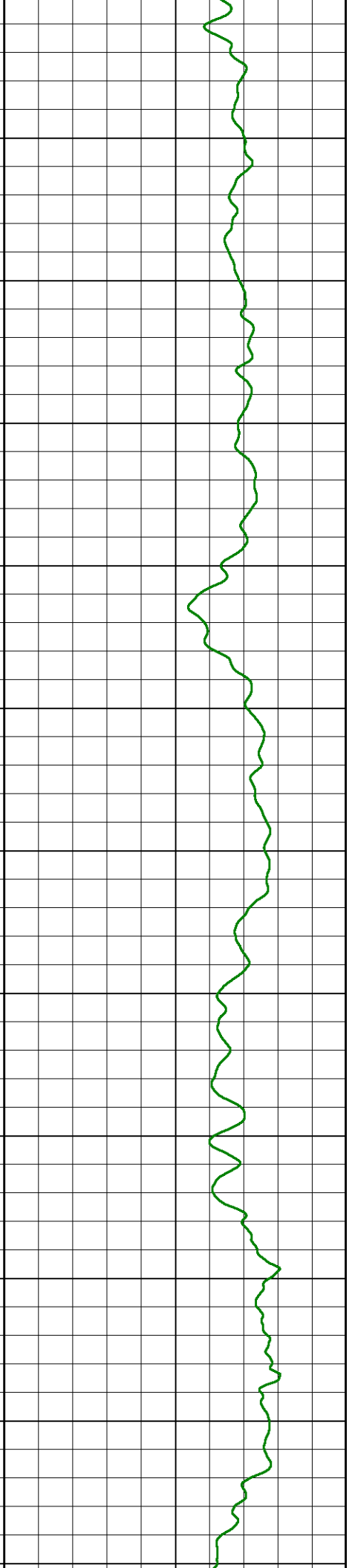
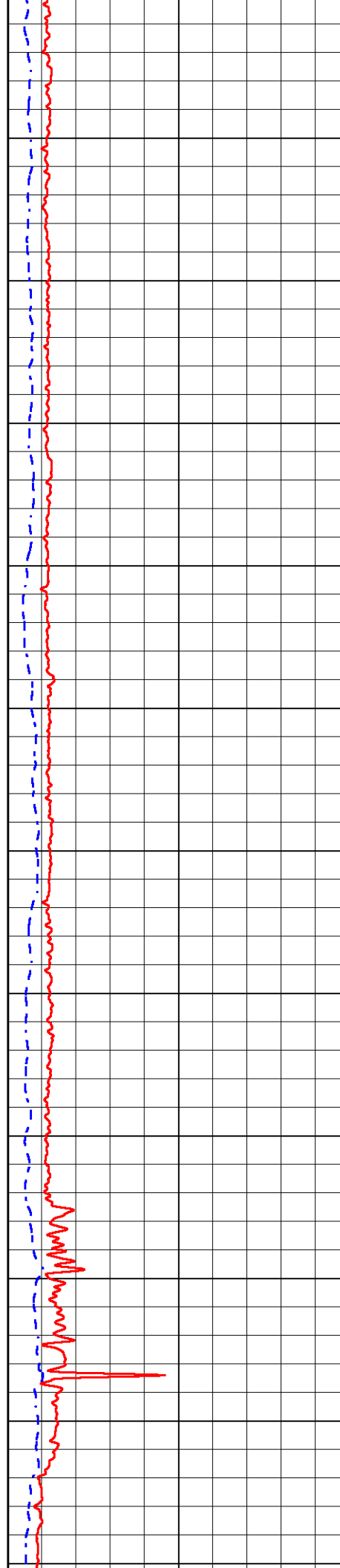


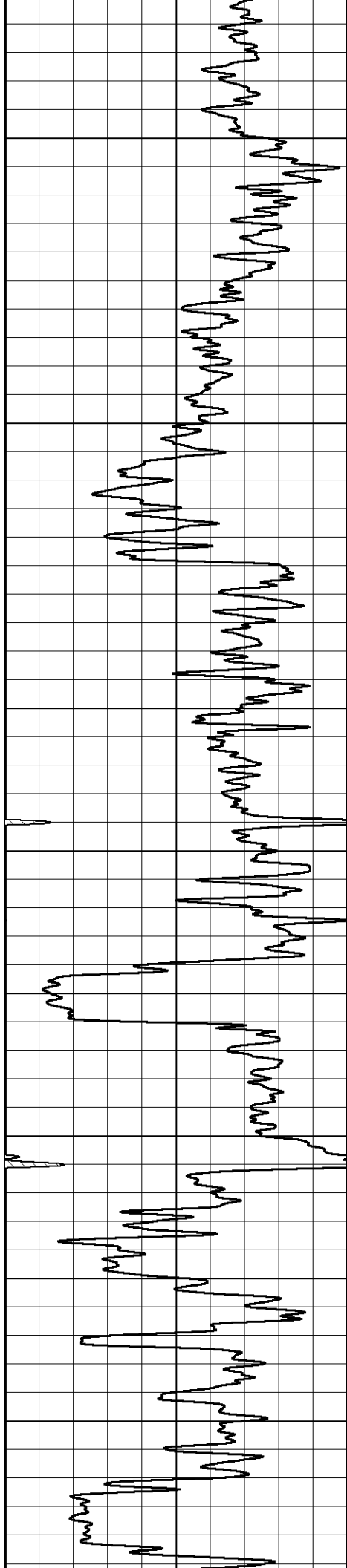




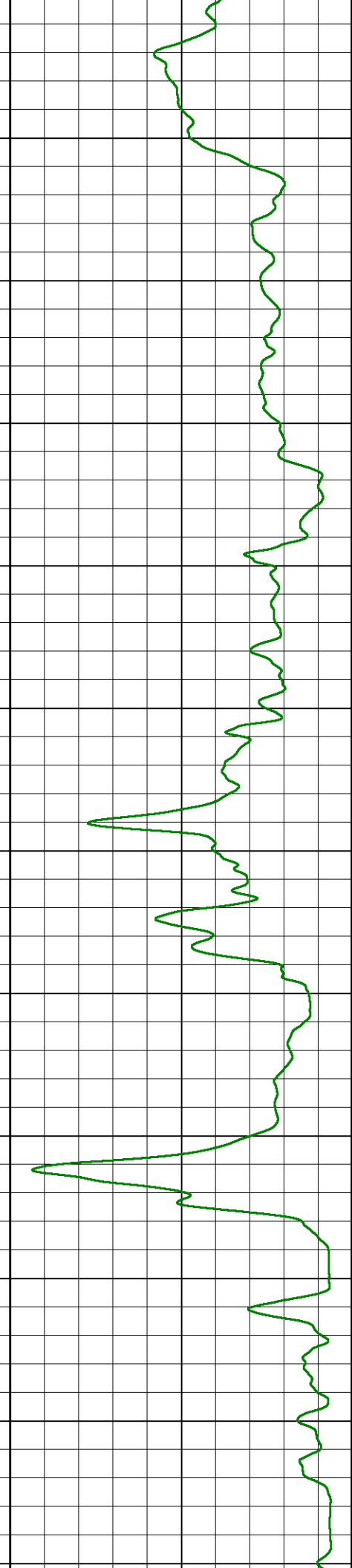
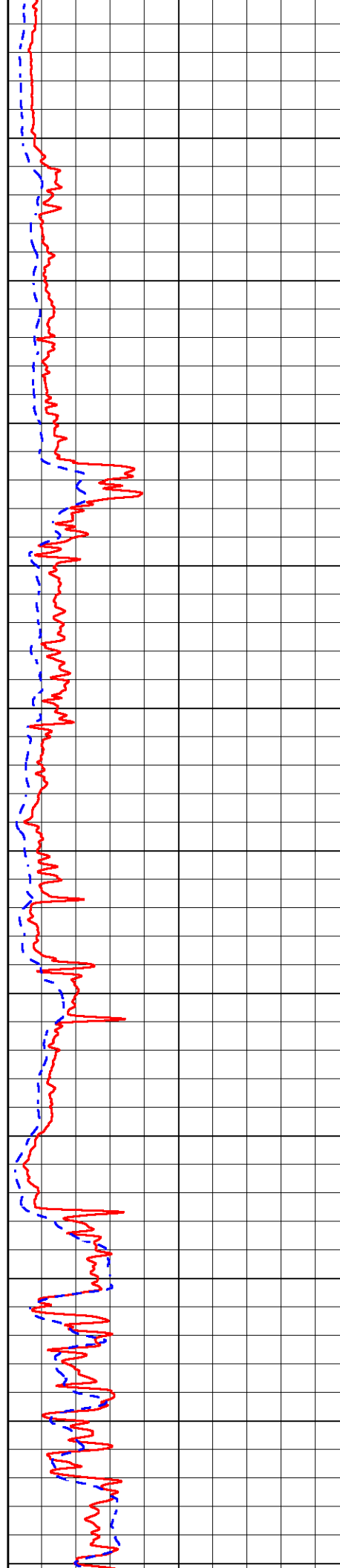


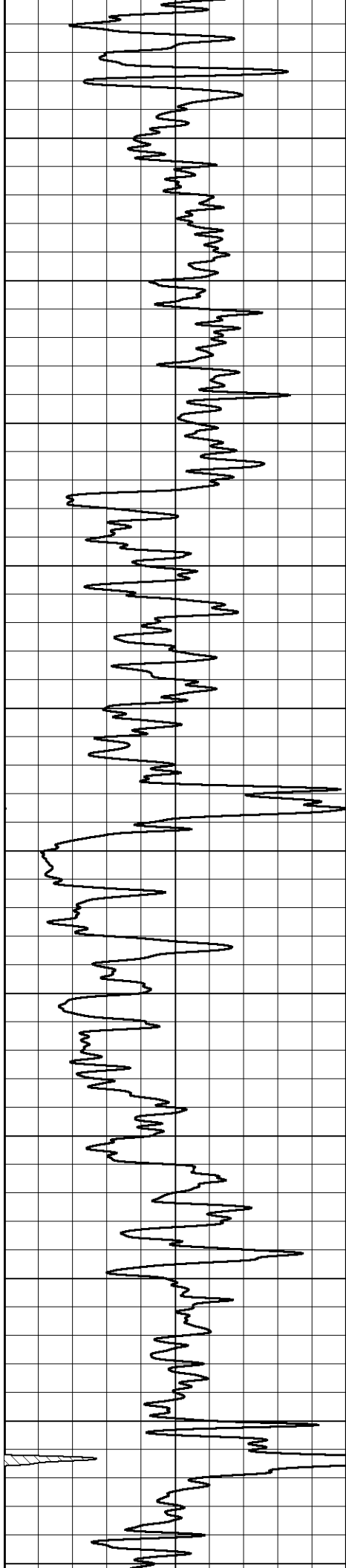
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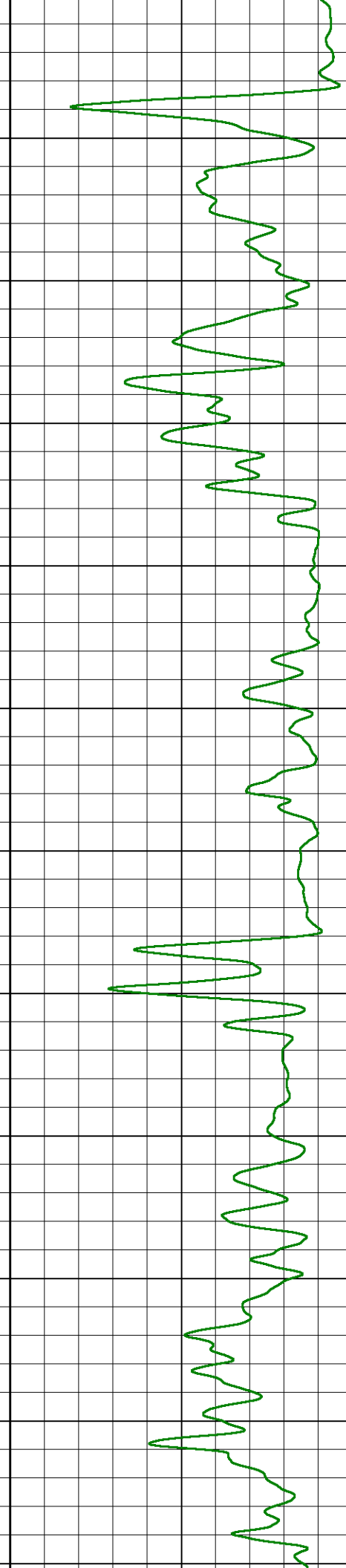
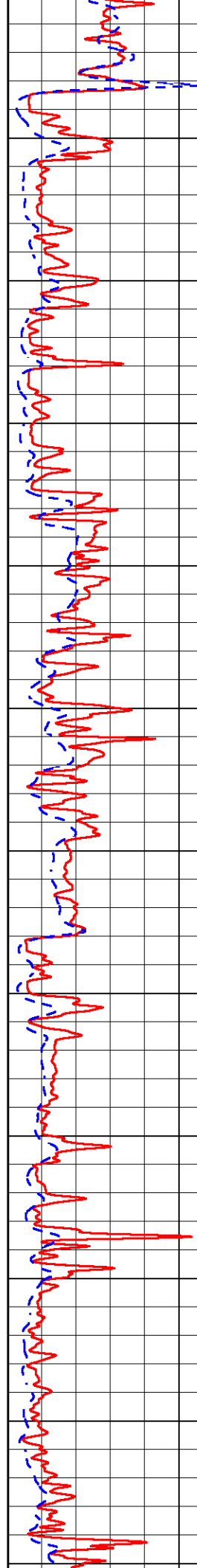


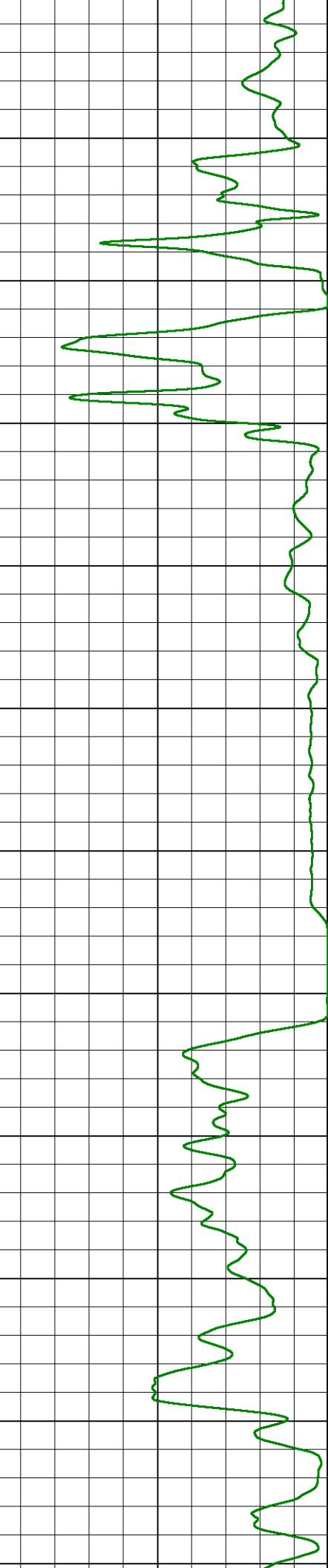
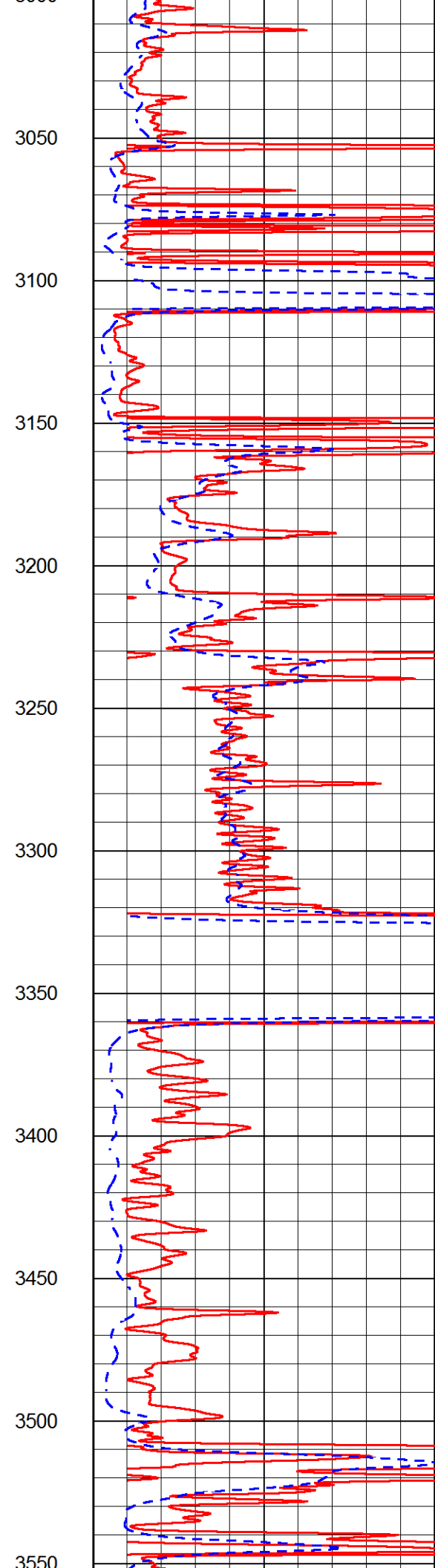
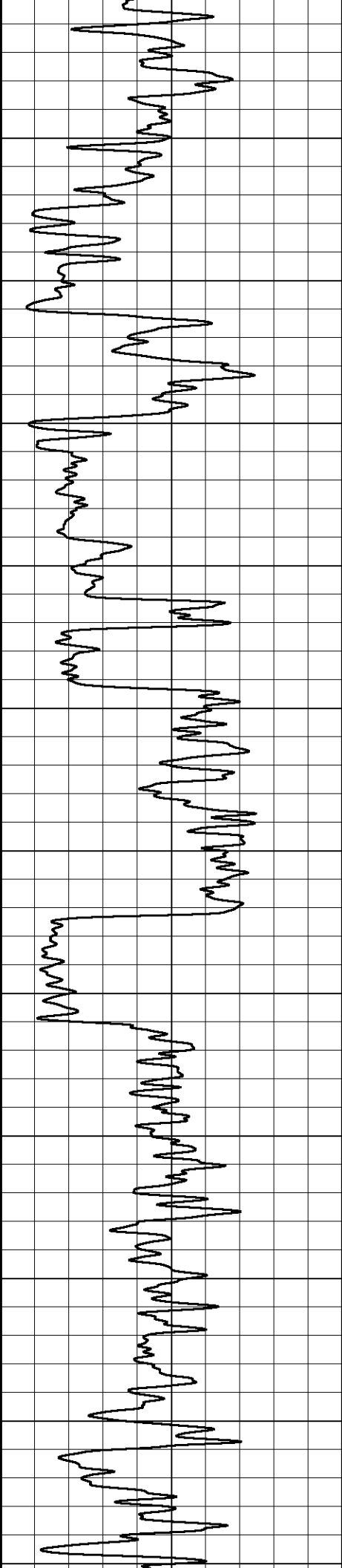
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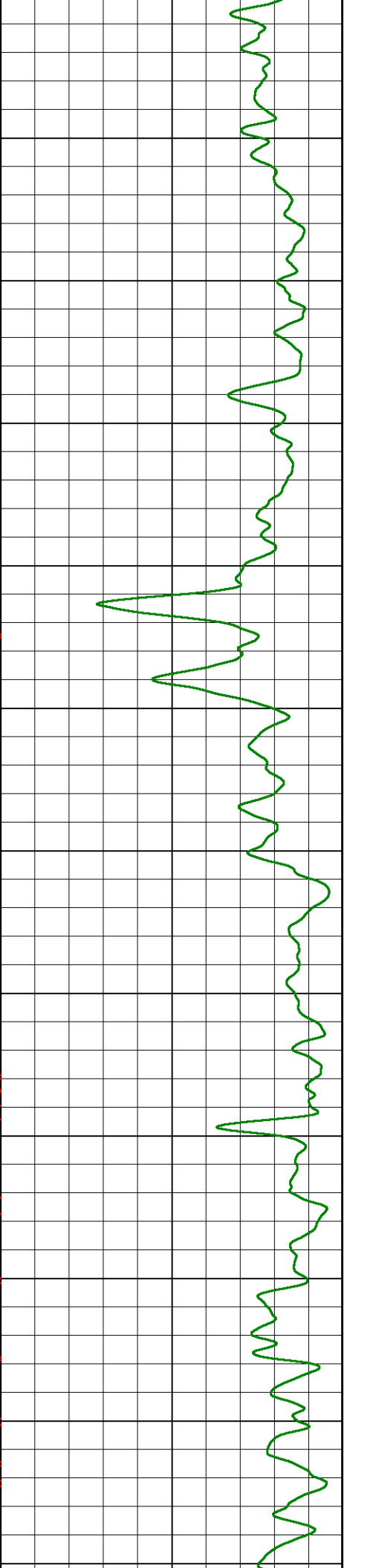
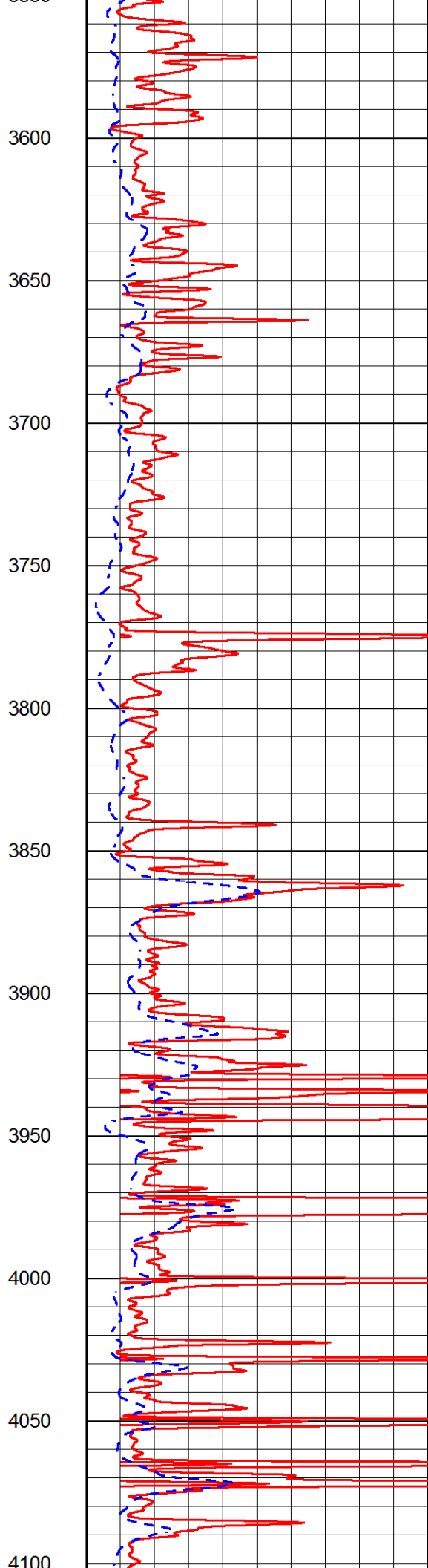
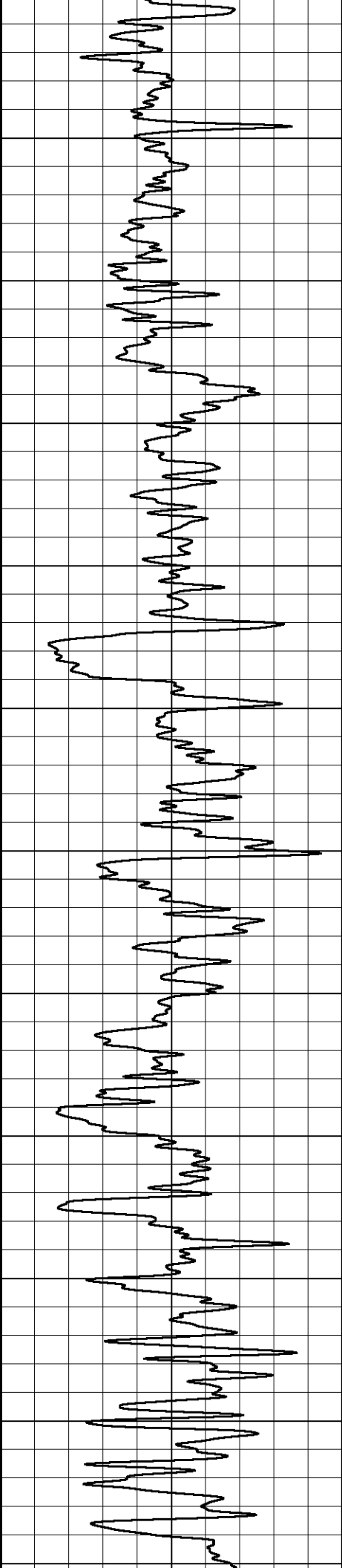


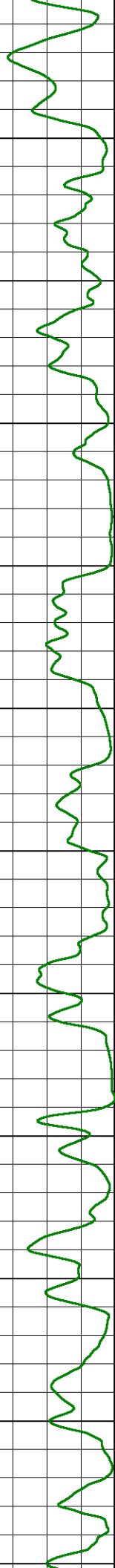
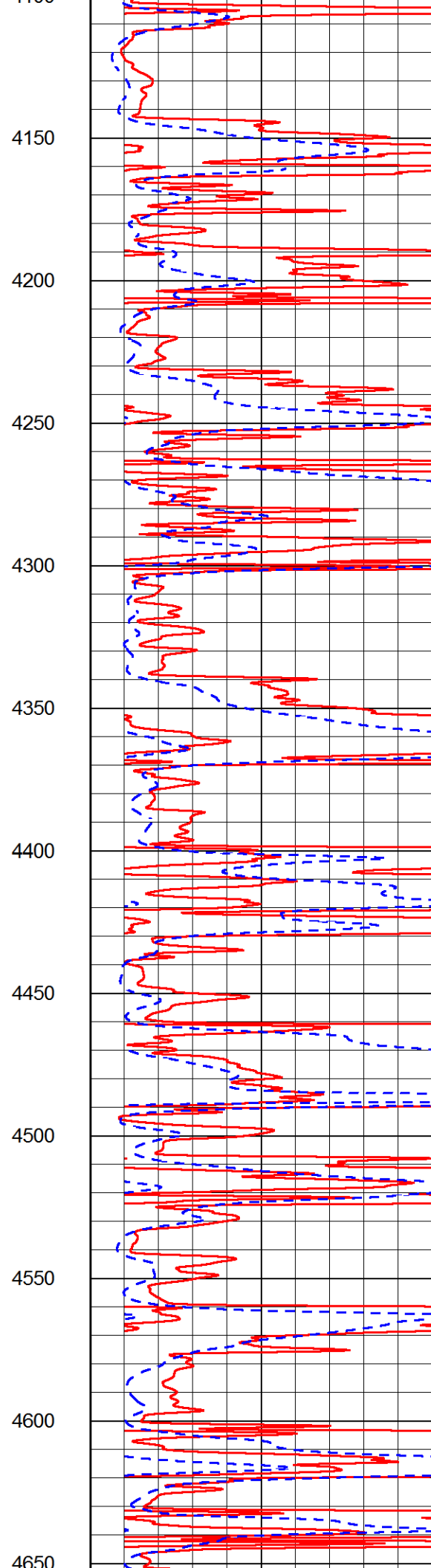
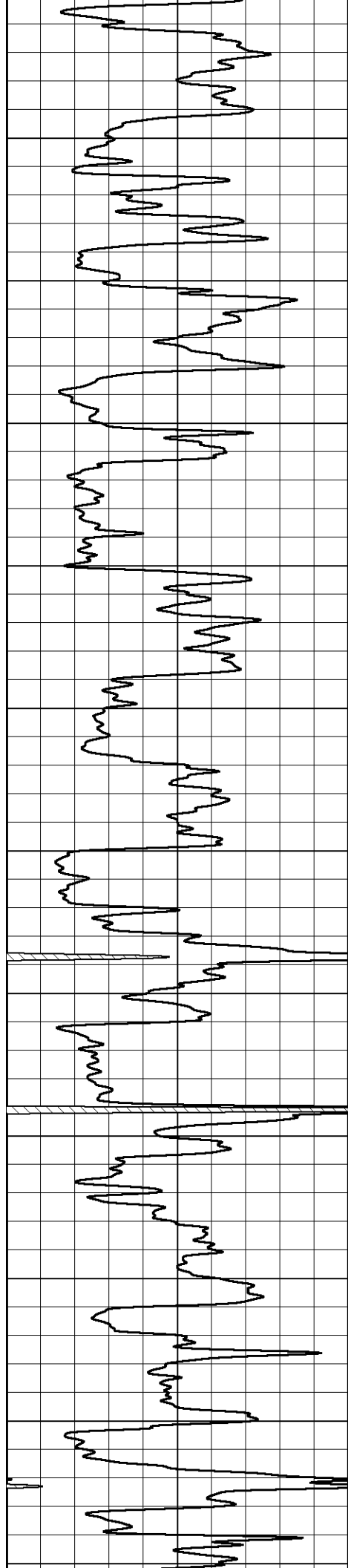


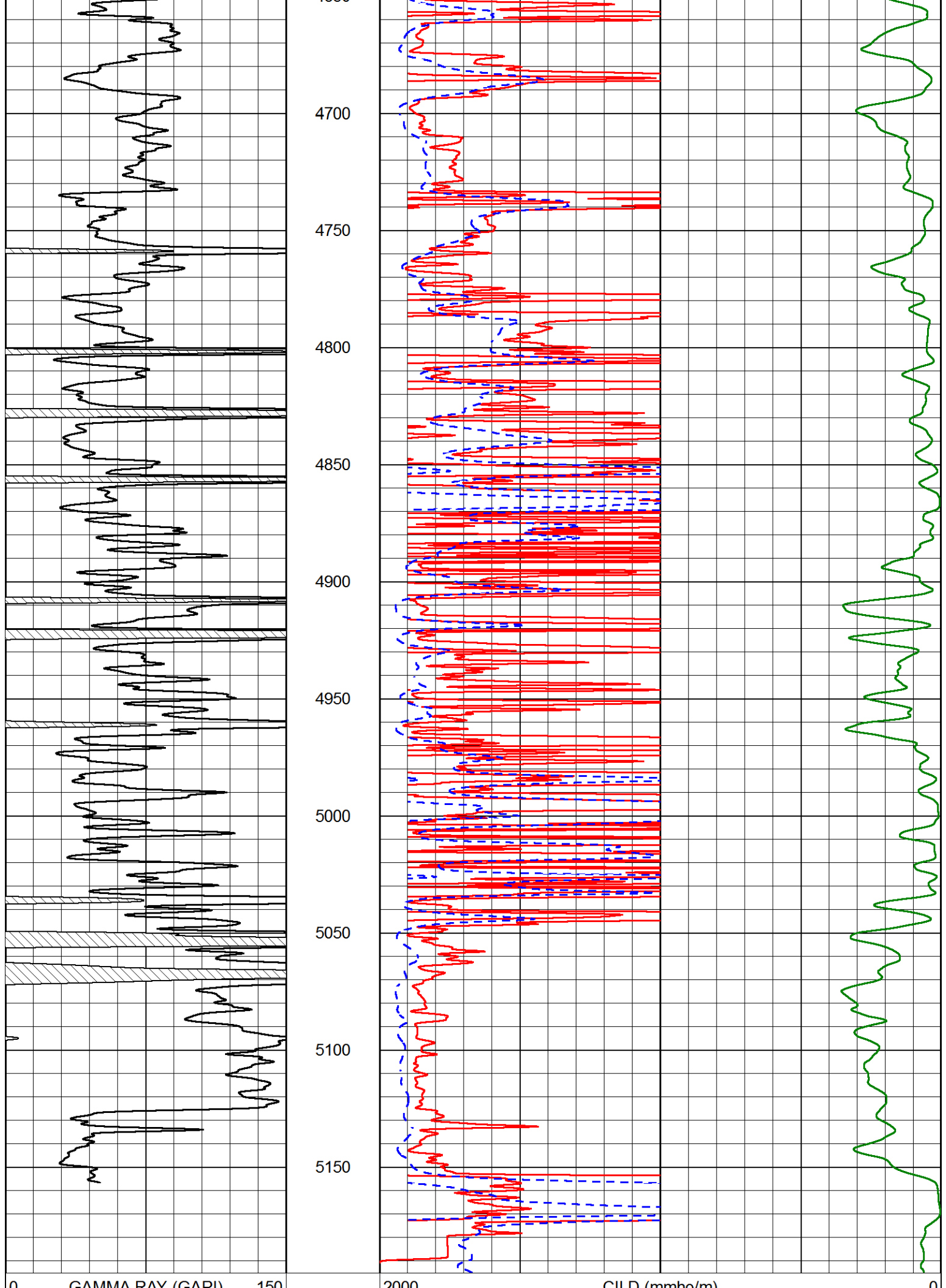
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2800
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0	GAMMA RAY (GAPI)	150
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2000	RLL3 (Ohm-m)	50
0	DEEP RESISTIVITY (Ohm-m)	50
50	RLL3 (Ohm-m)	200
50	RILD (Ohm-m)	200

0	
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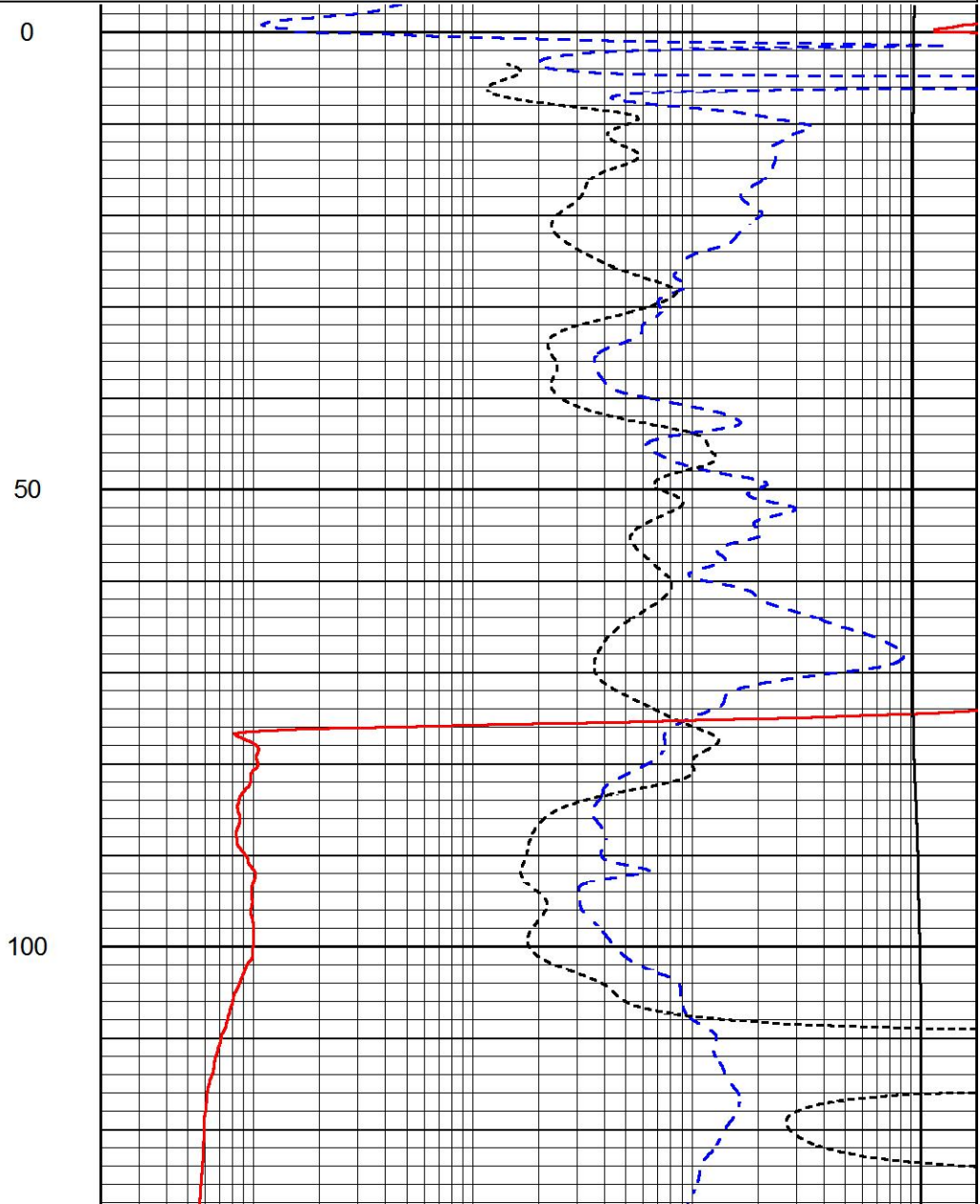
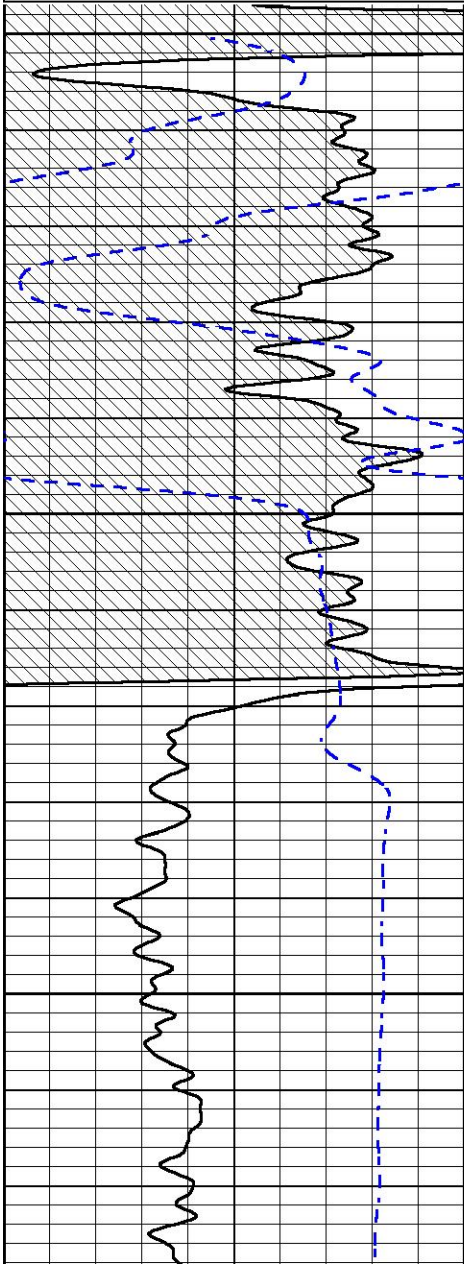


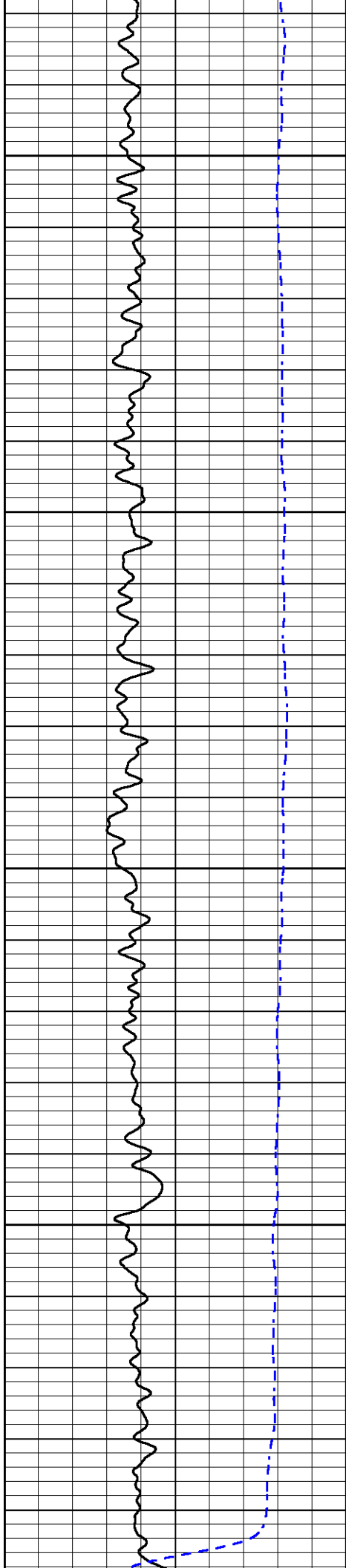
MAIN PASS

Database File: murfin_sharp_c_1_6.db
 Dataset Pathname: stackml/pass3.1
 Presentation Format: dil
 Dataset Creation: Mon Mar 09 01:24:08 2020
 Charted by: Depth in Feet scaled 1:240

0	GAMMA RAY (GAPI)	150
-200	SP (mV)	0

0.2	DEEP RESISTIVITY (Ohm-m)	2000
0.2	MEDIUM RESISTIVITY (Ohm-m)	2000
0.2	RLL3 (Ohm-m)	2000
15000	LINE TENSION (lb)	0



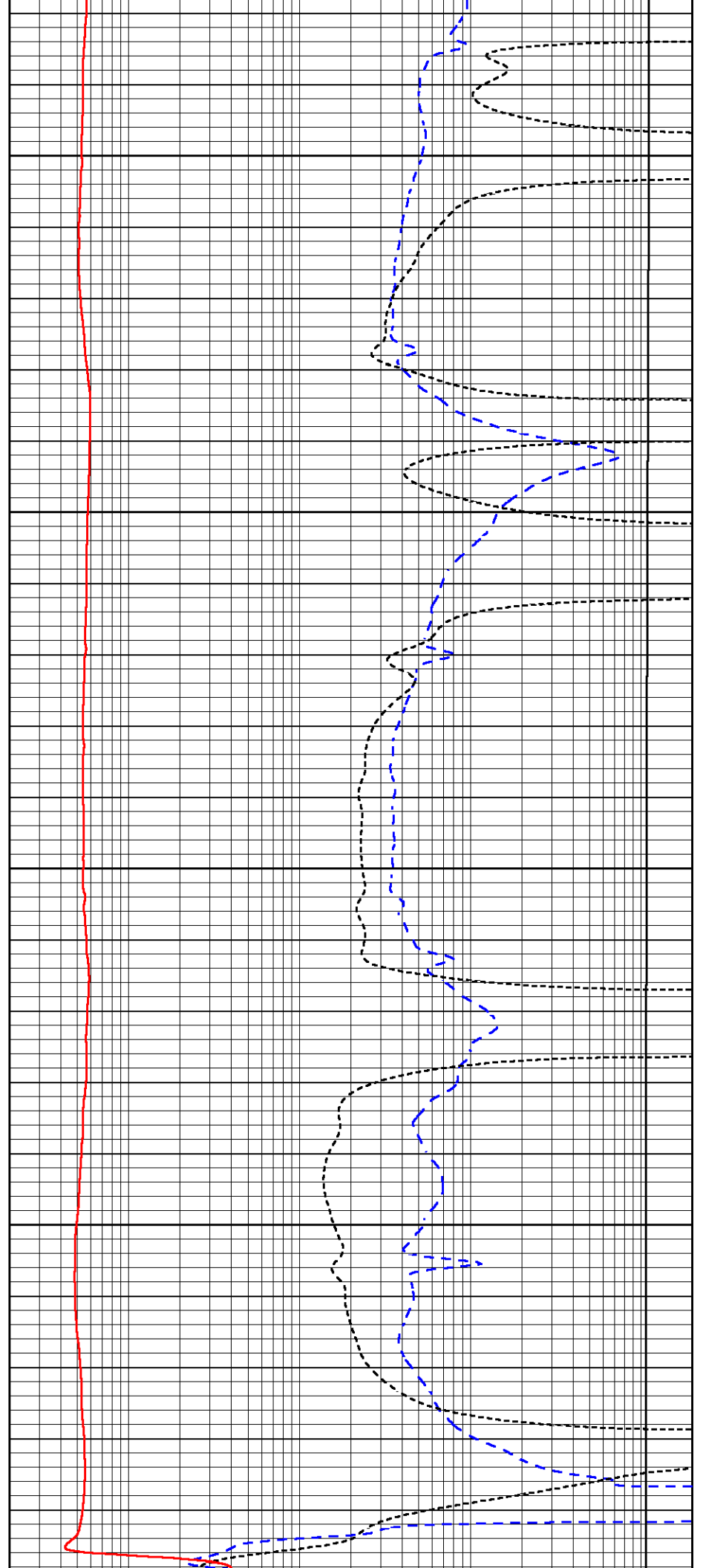


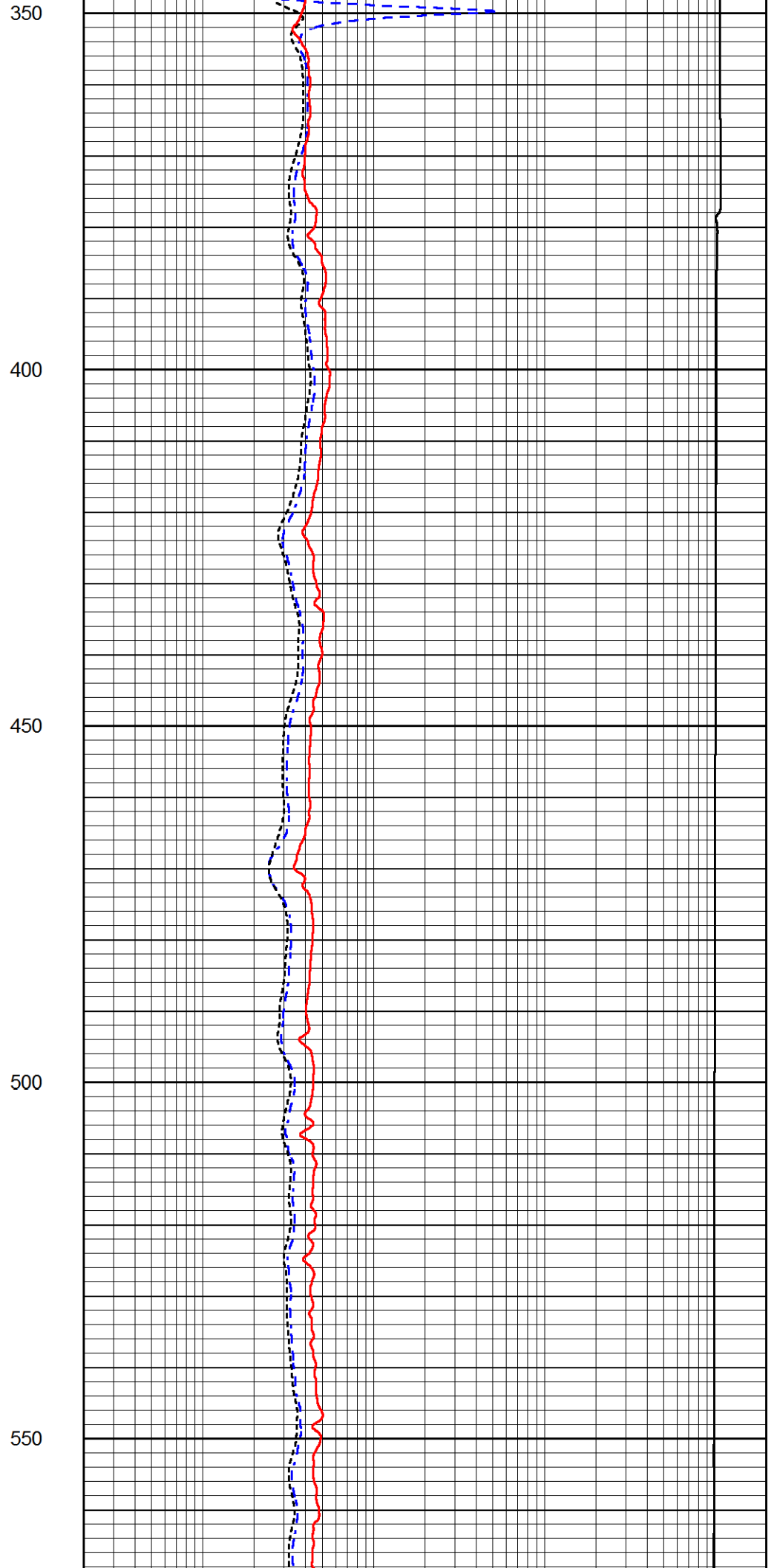
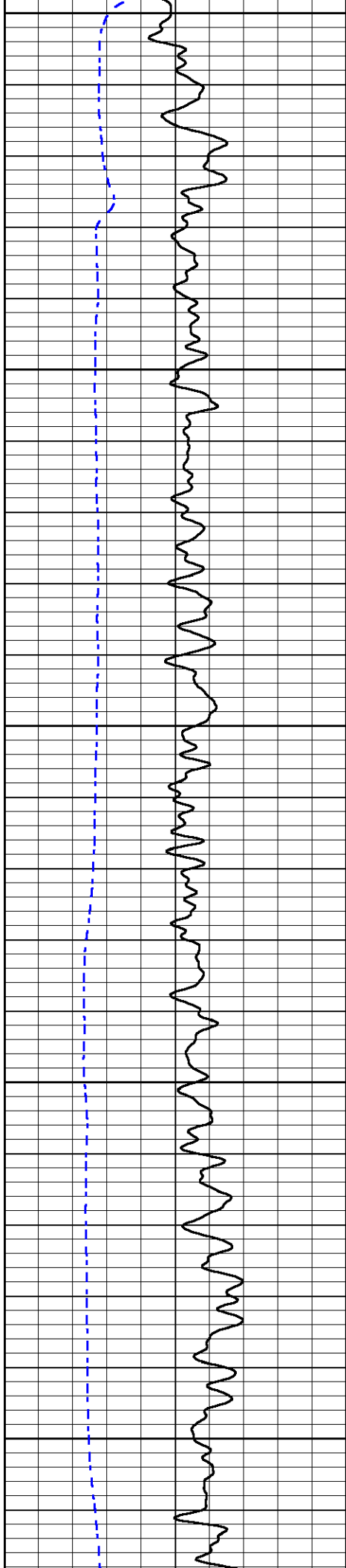
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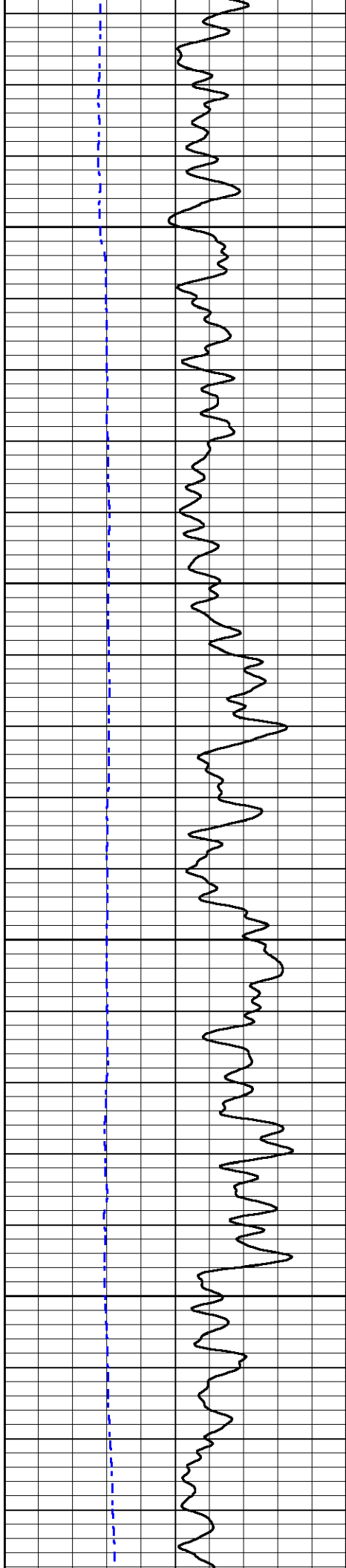
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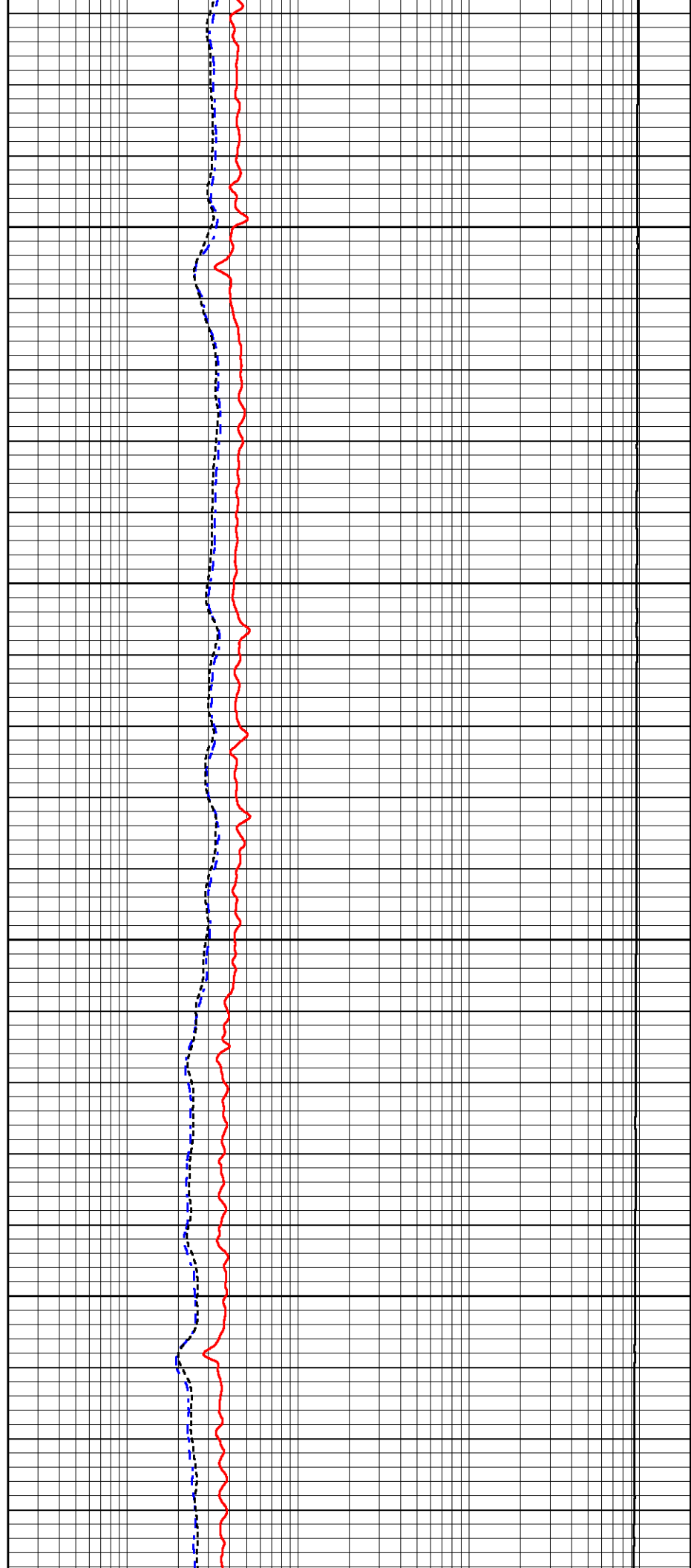


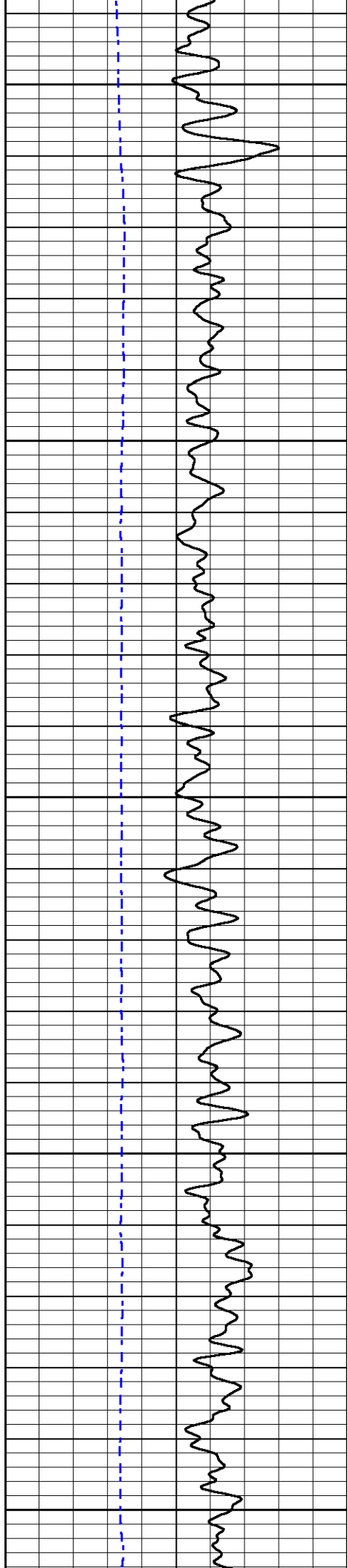
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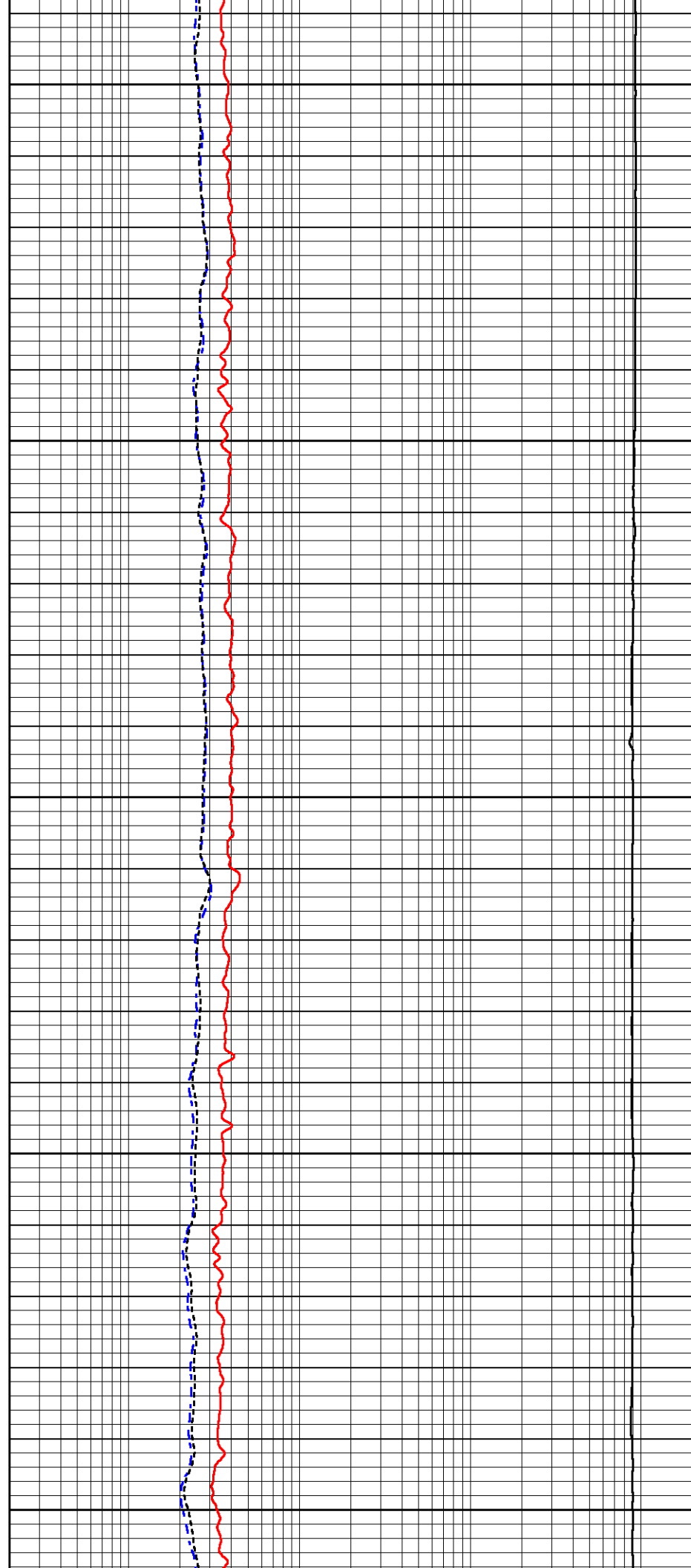
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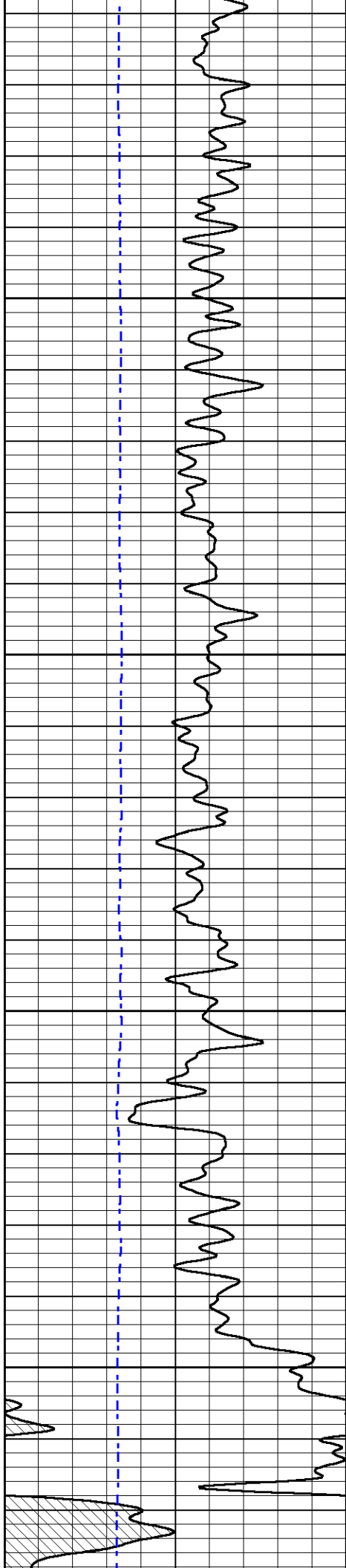
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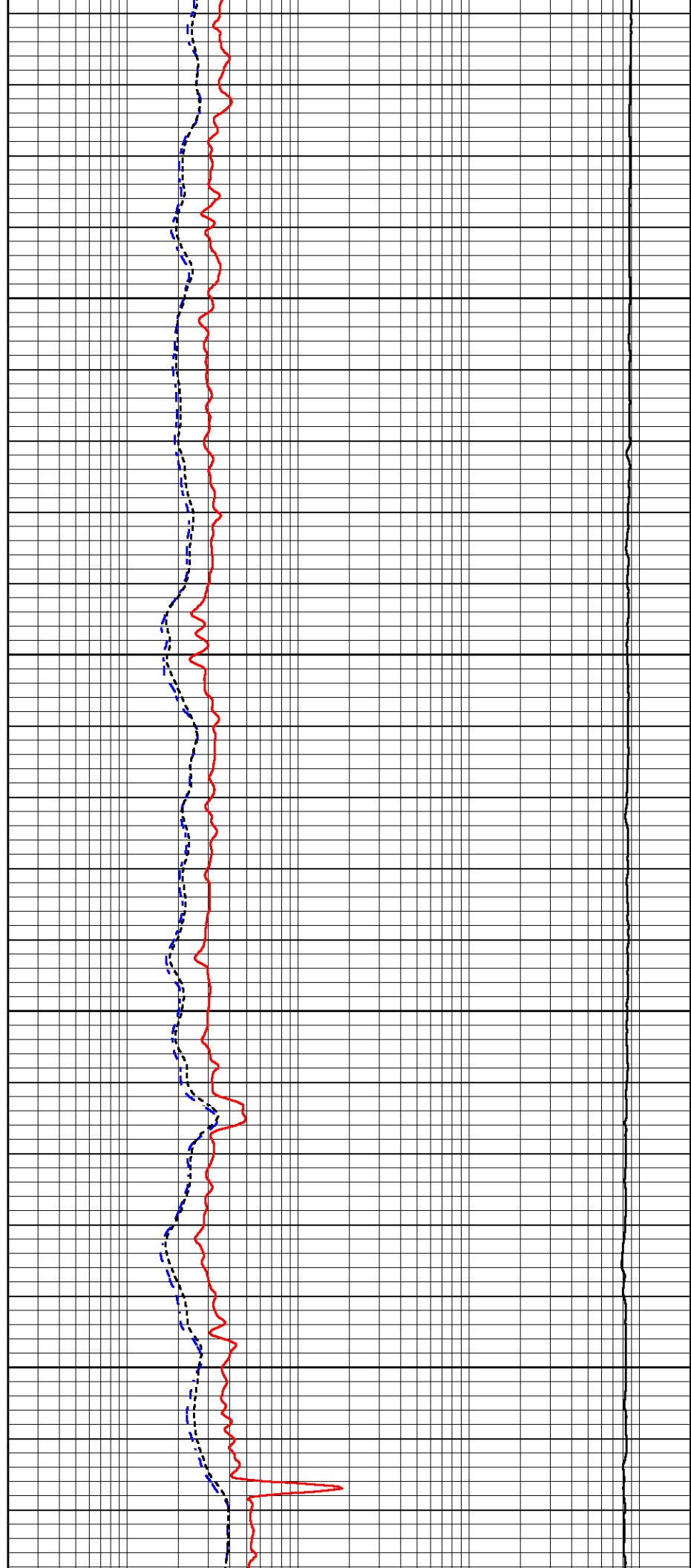


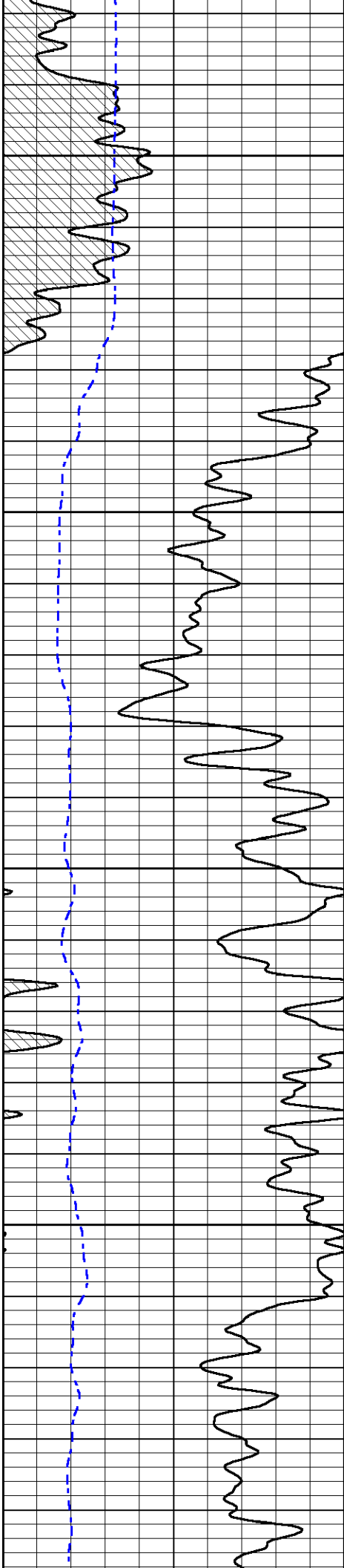
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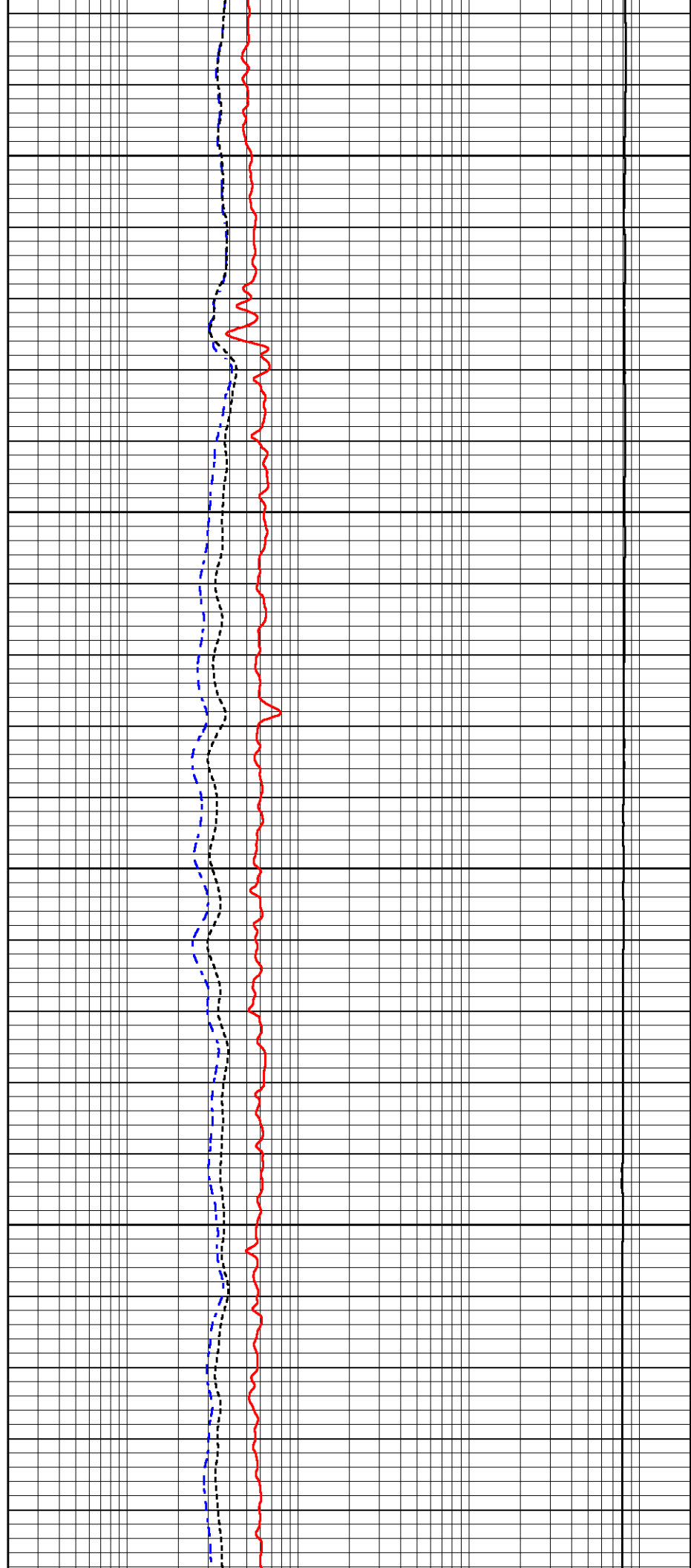


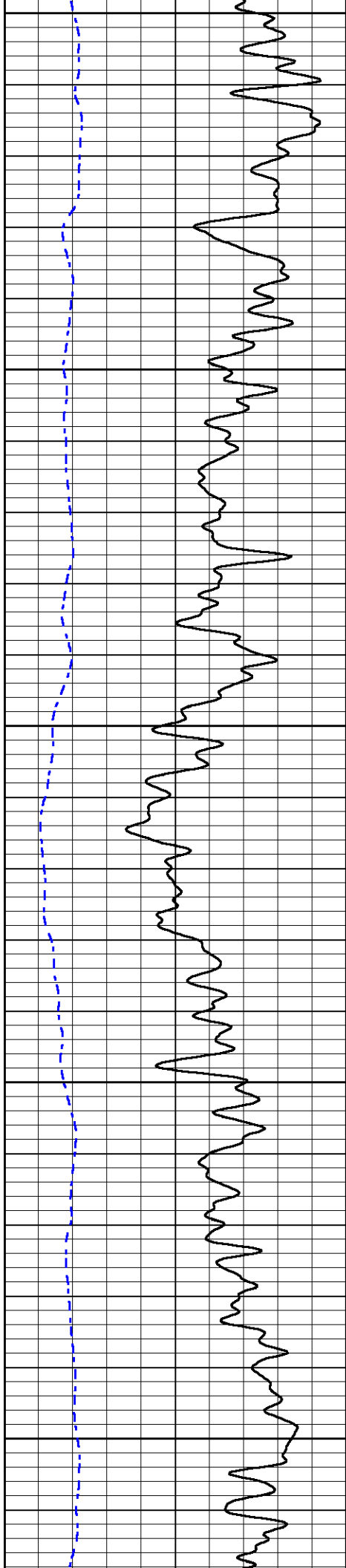
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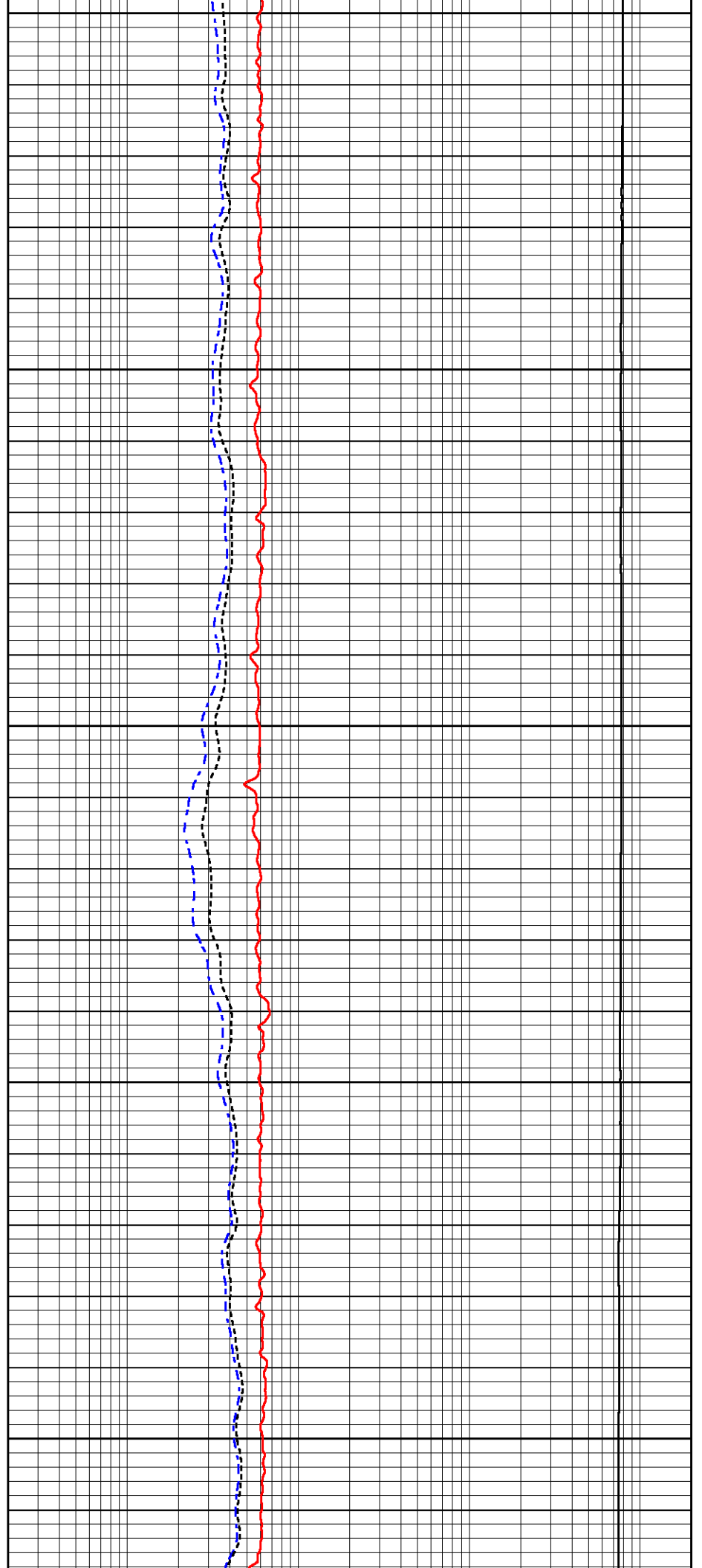
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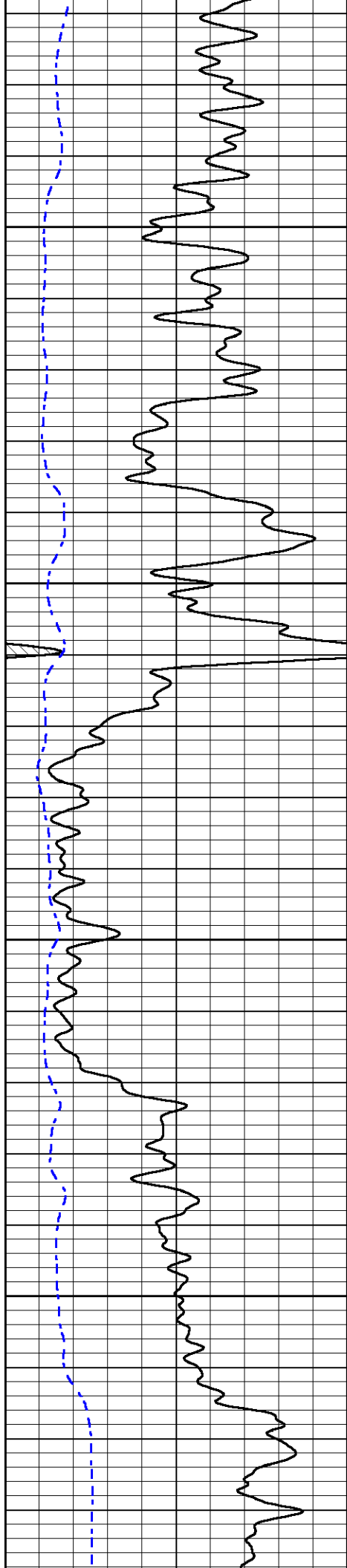
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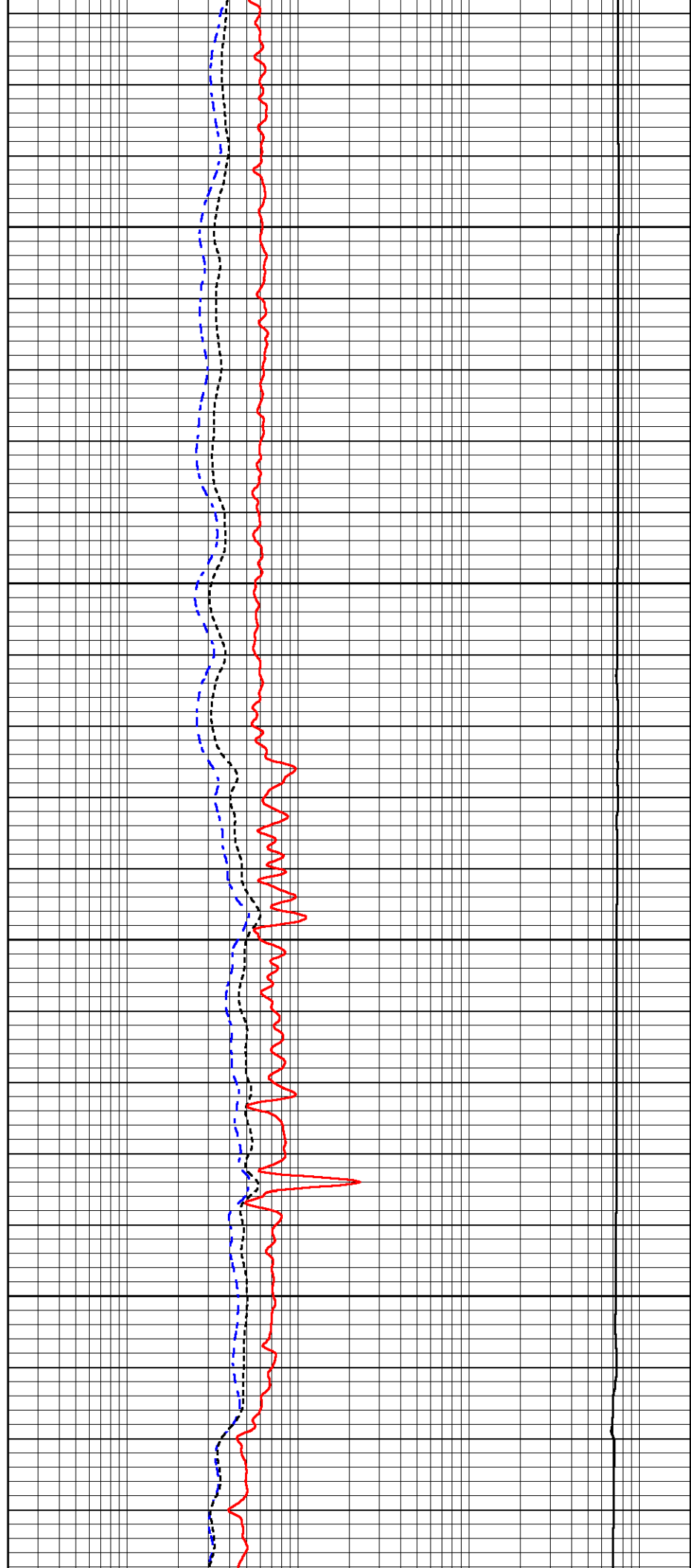


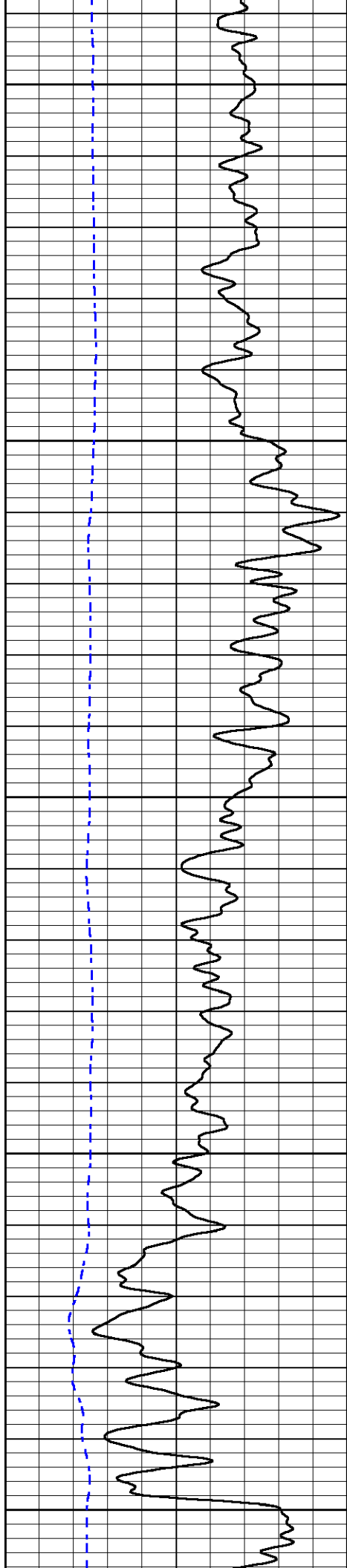
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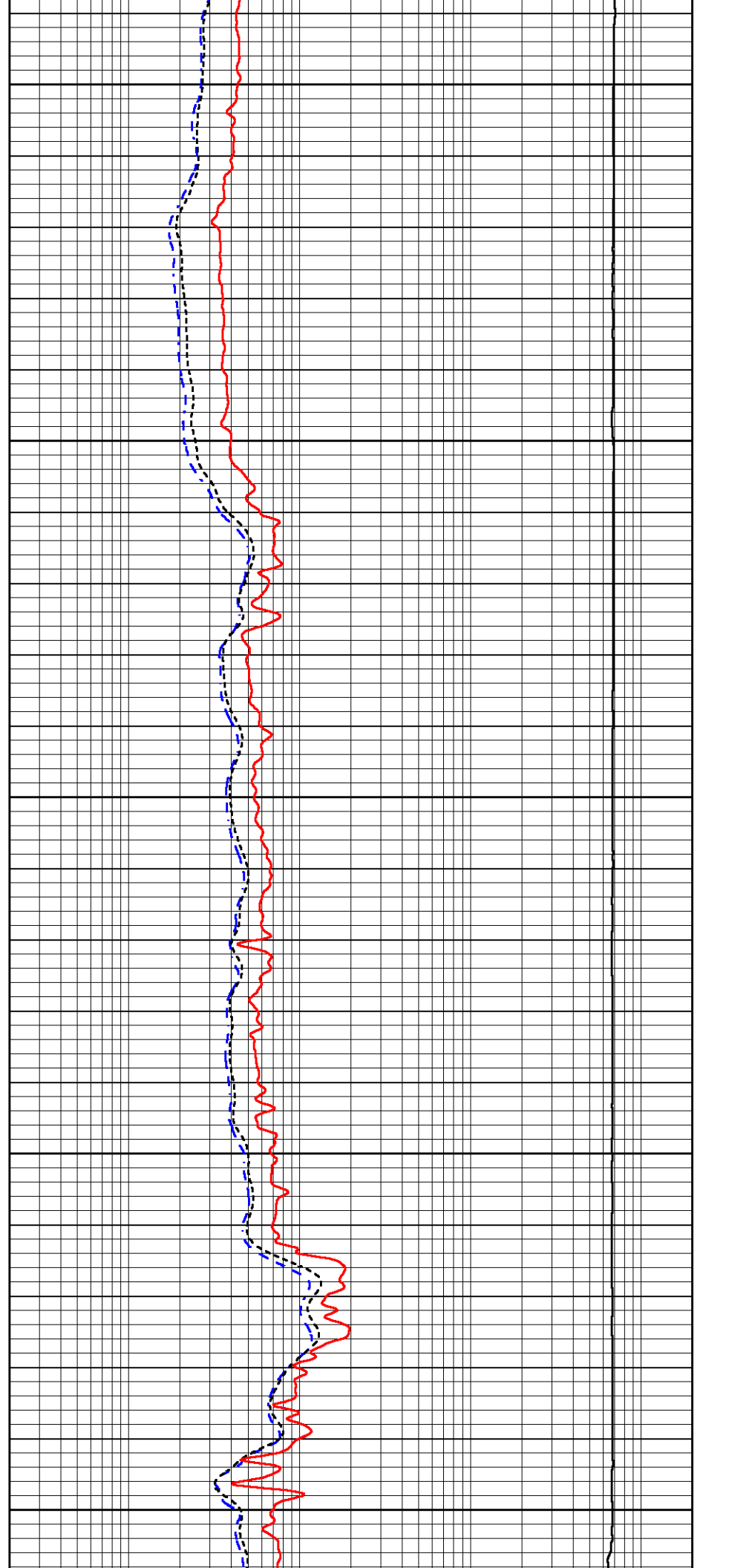
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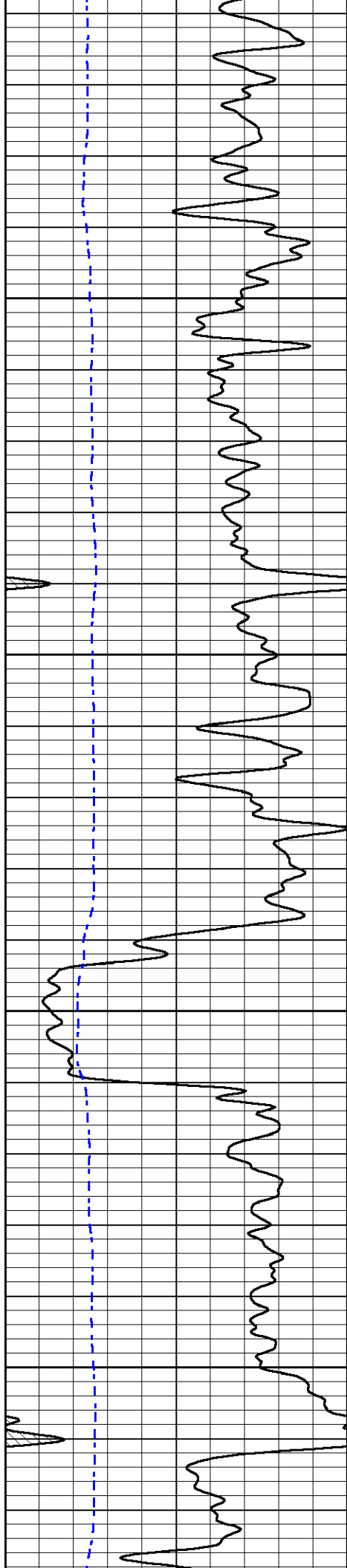
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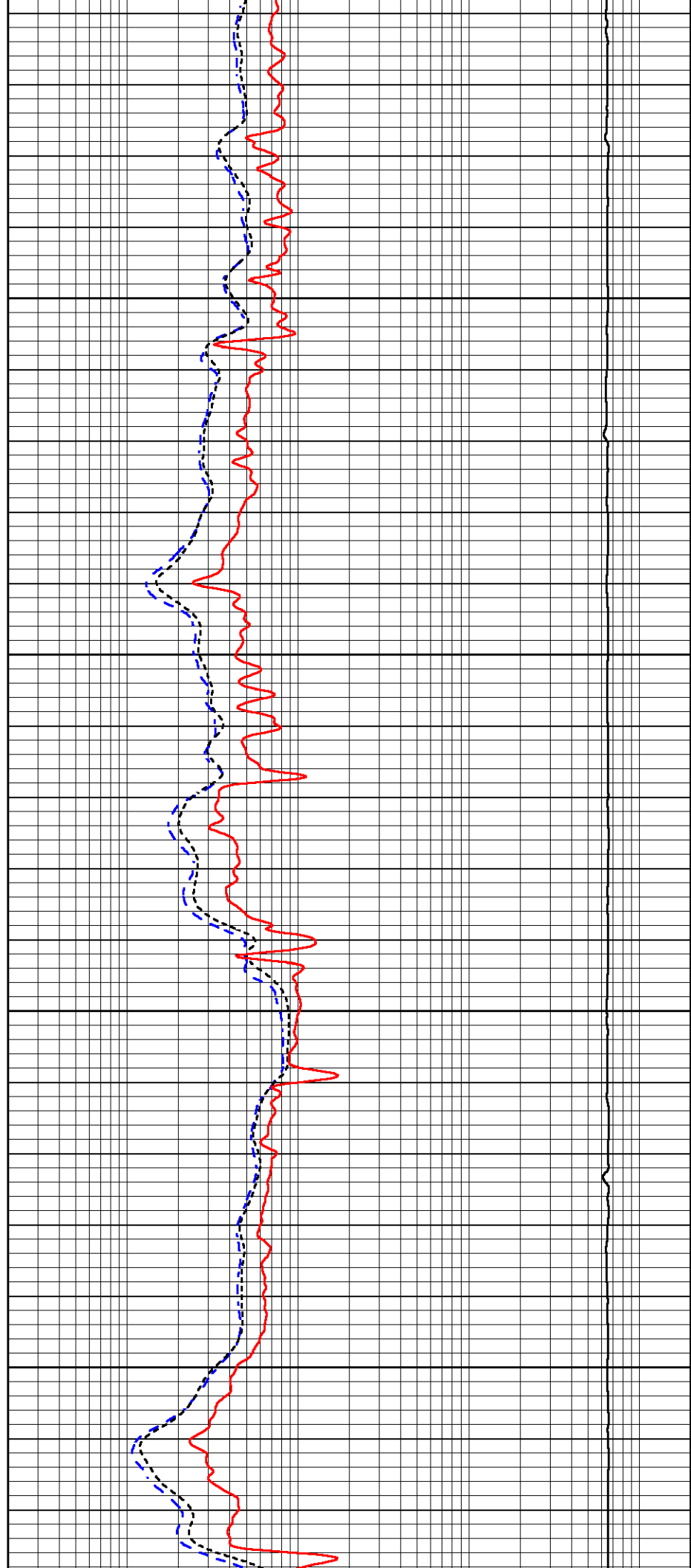


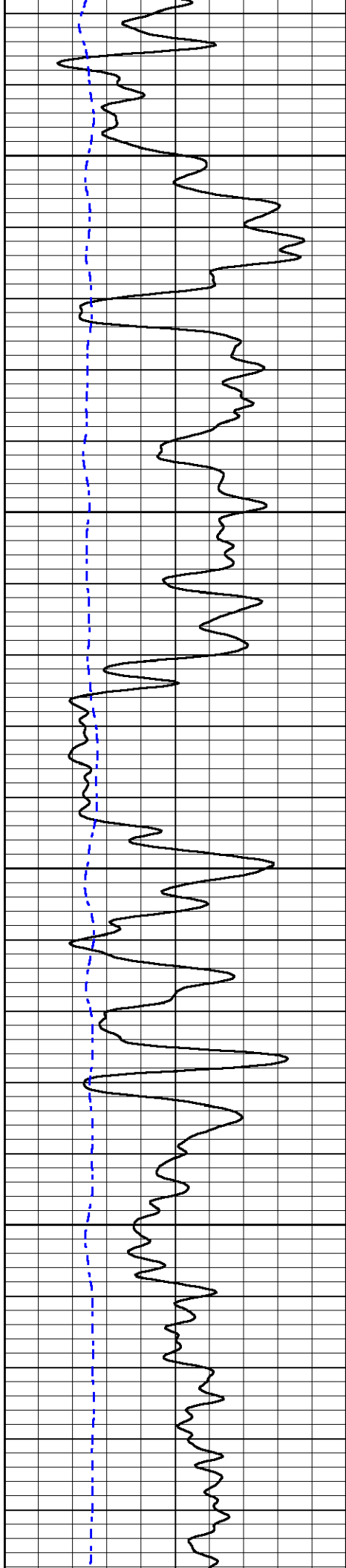
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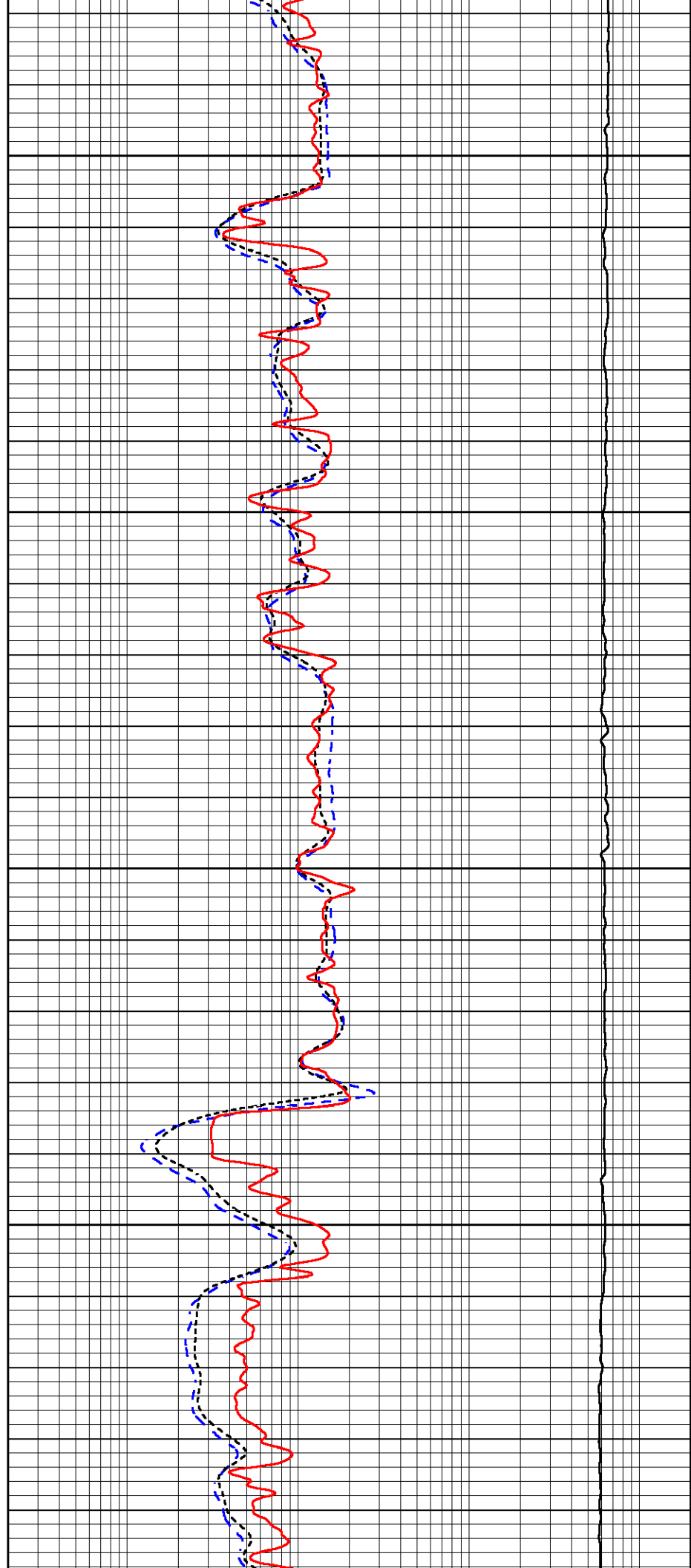


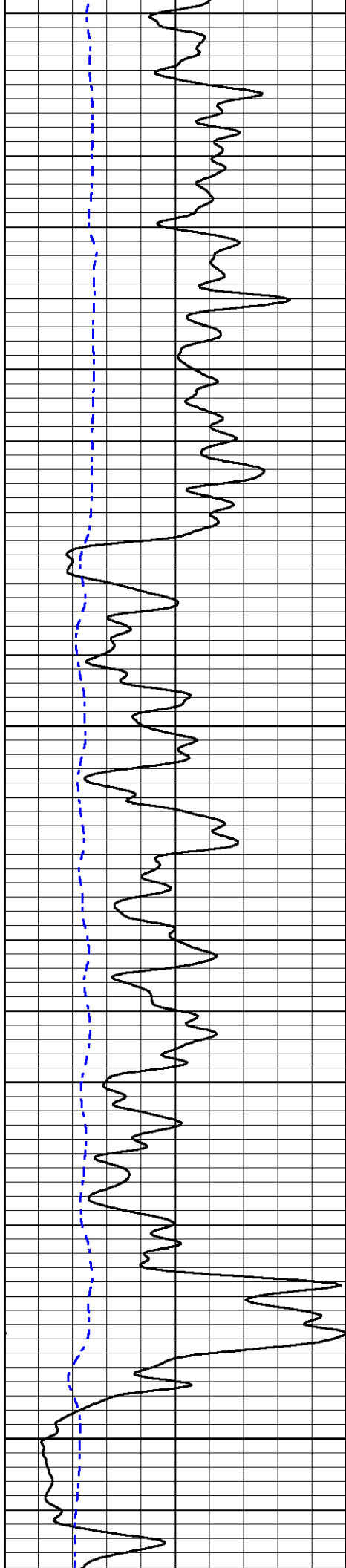
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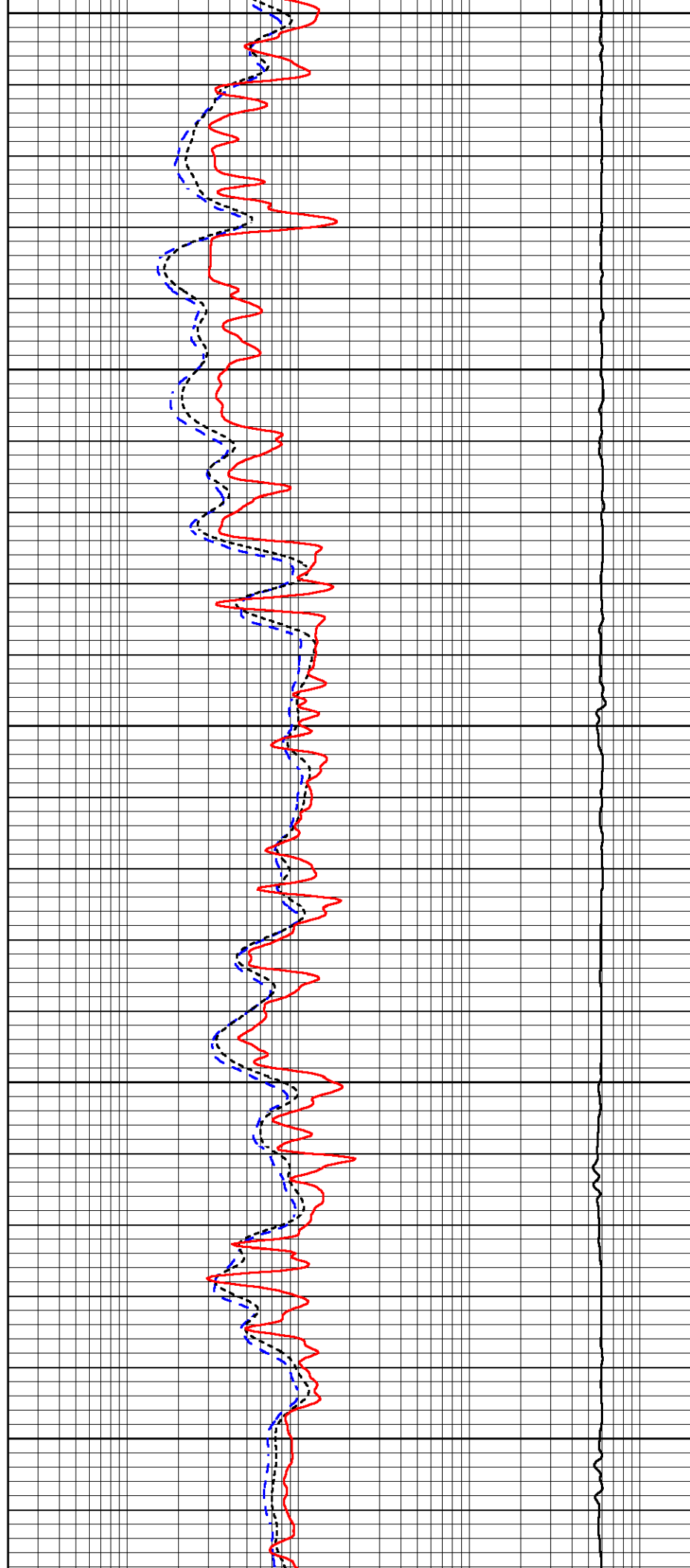
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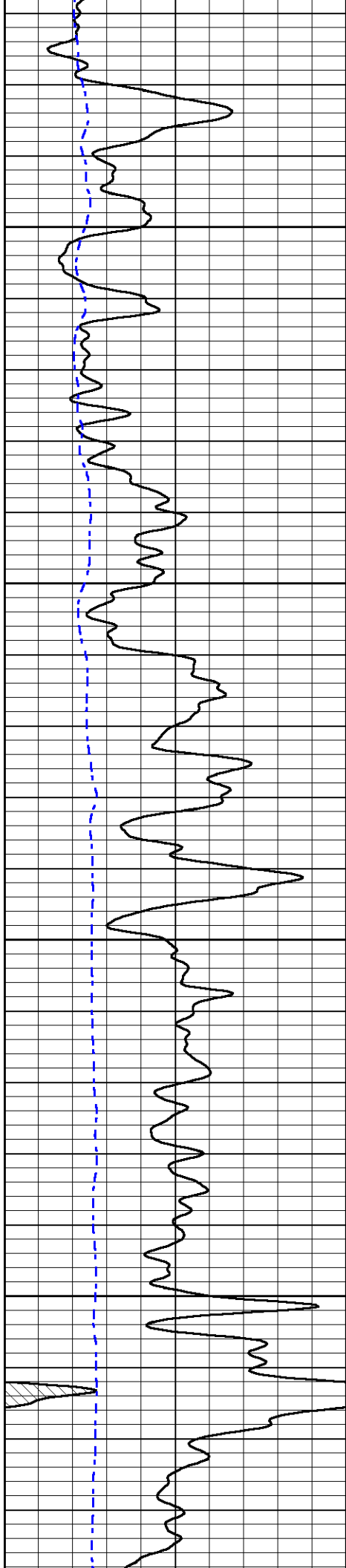
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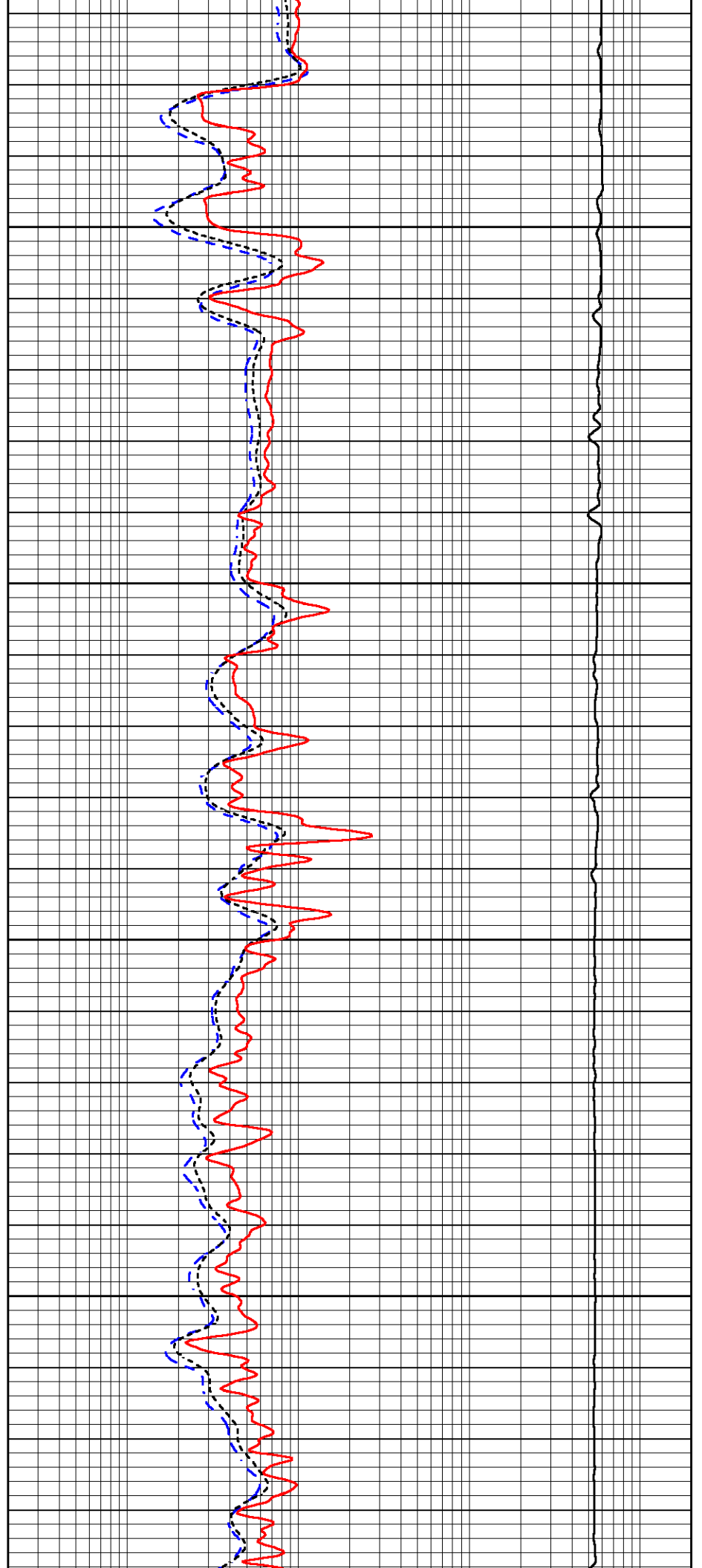


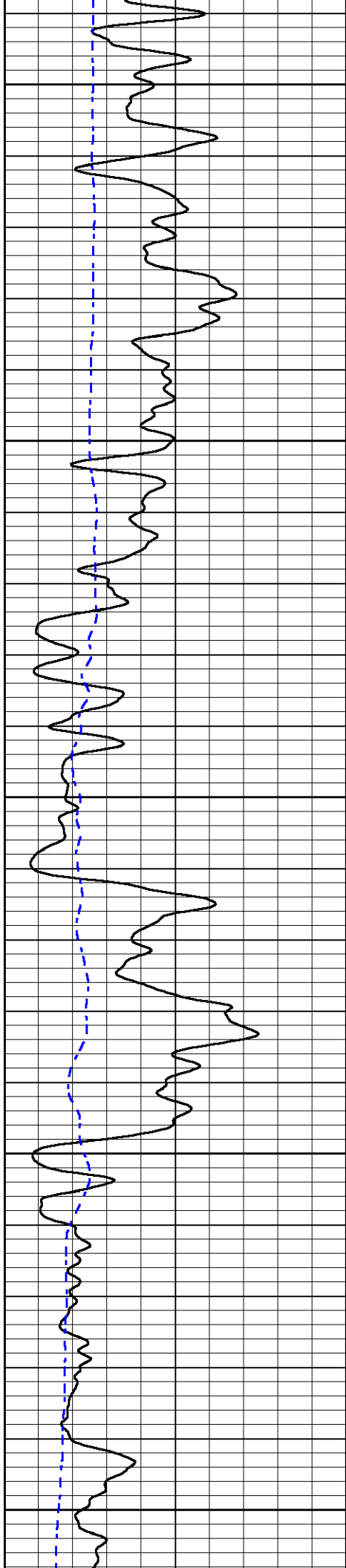
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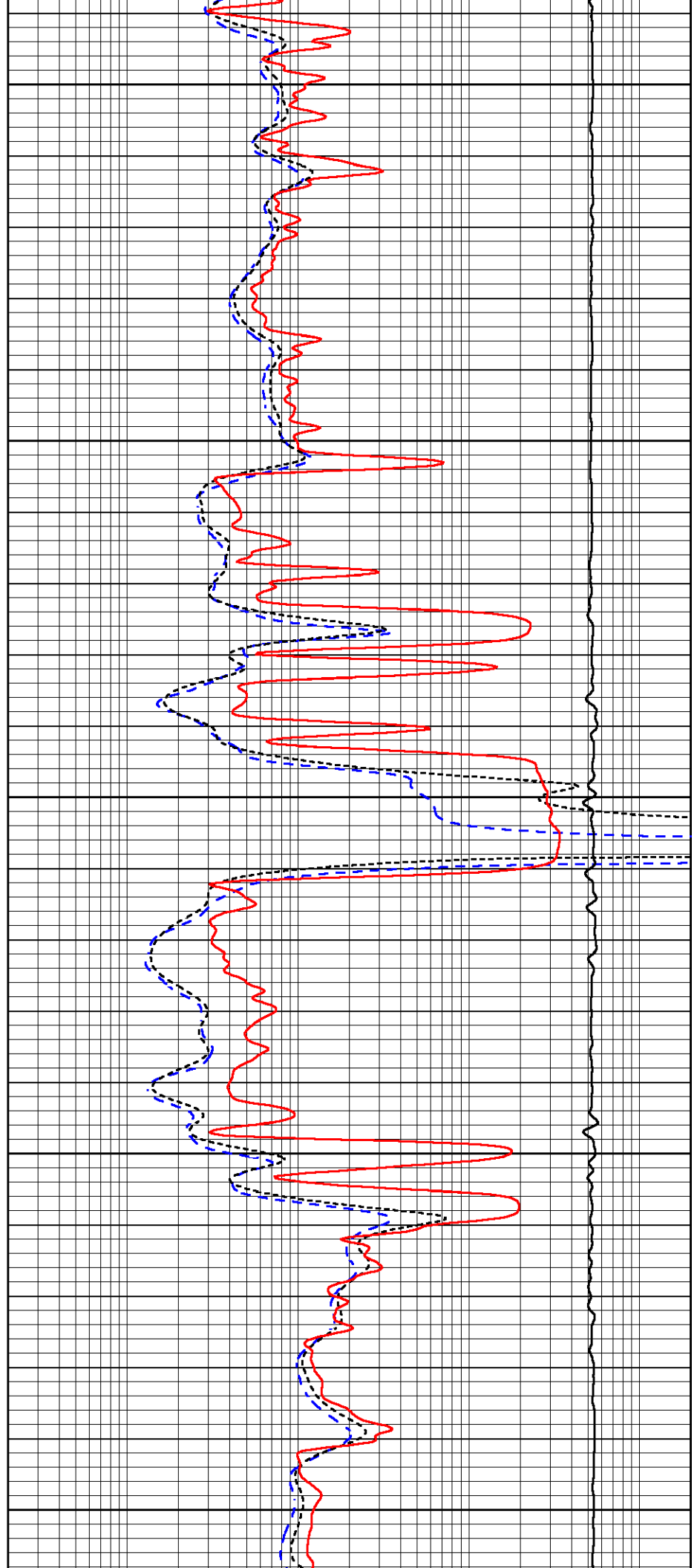
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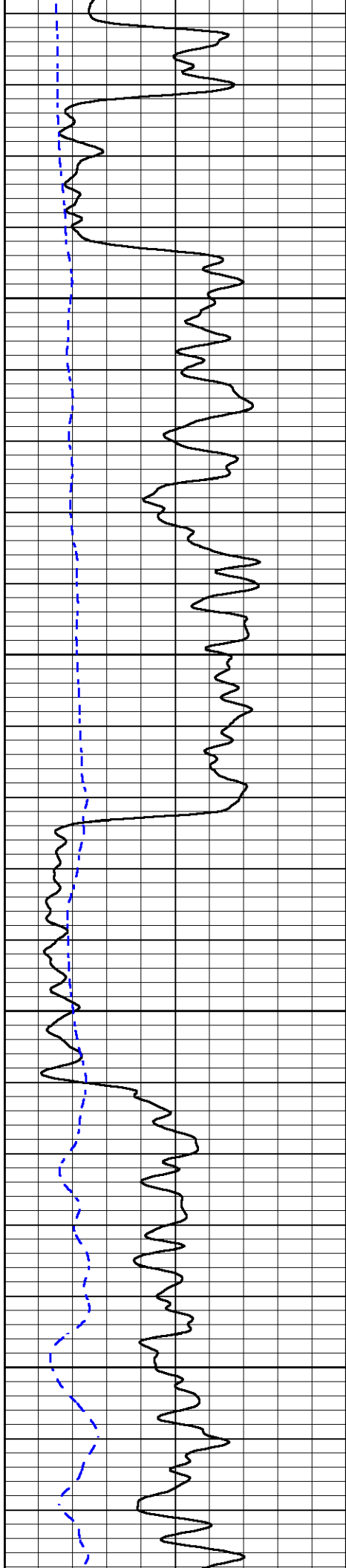
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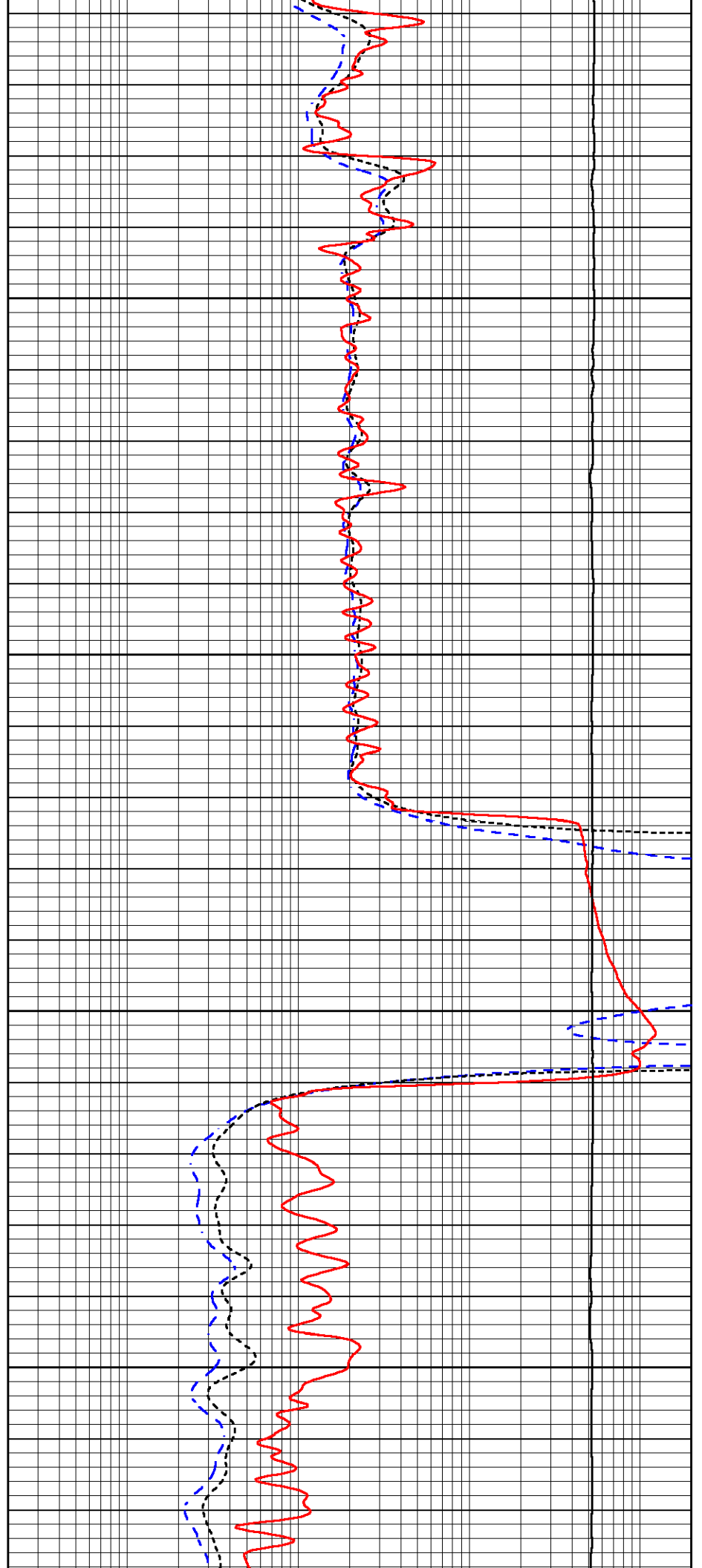


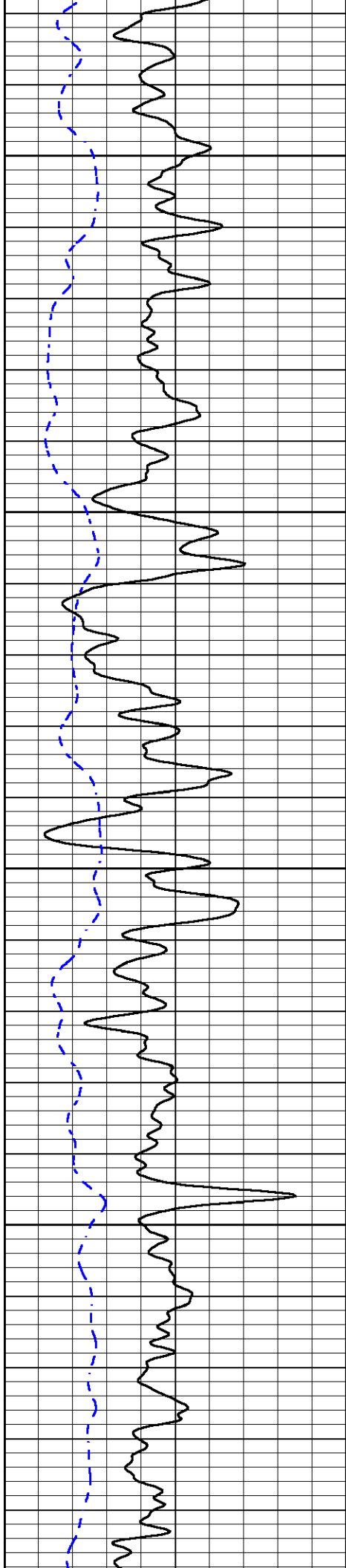
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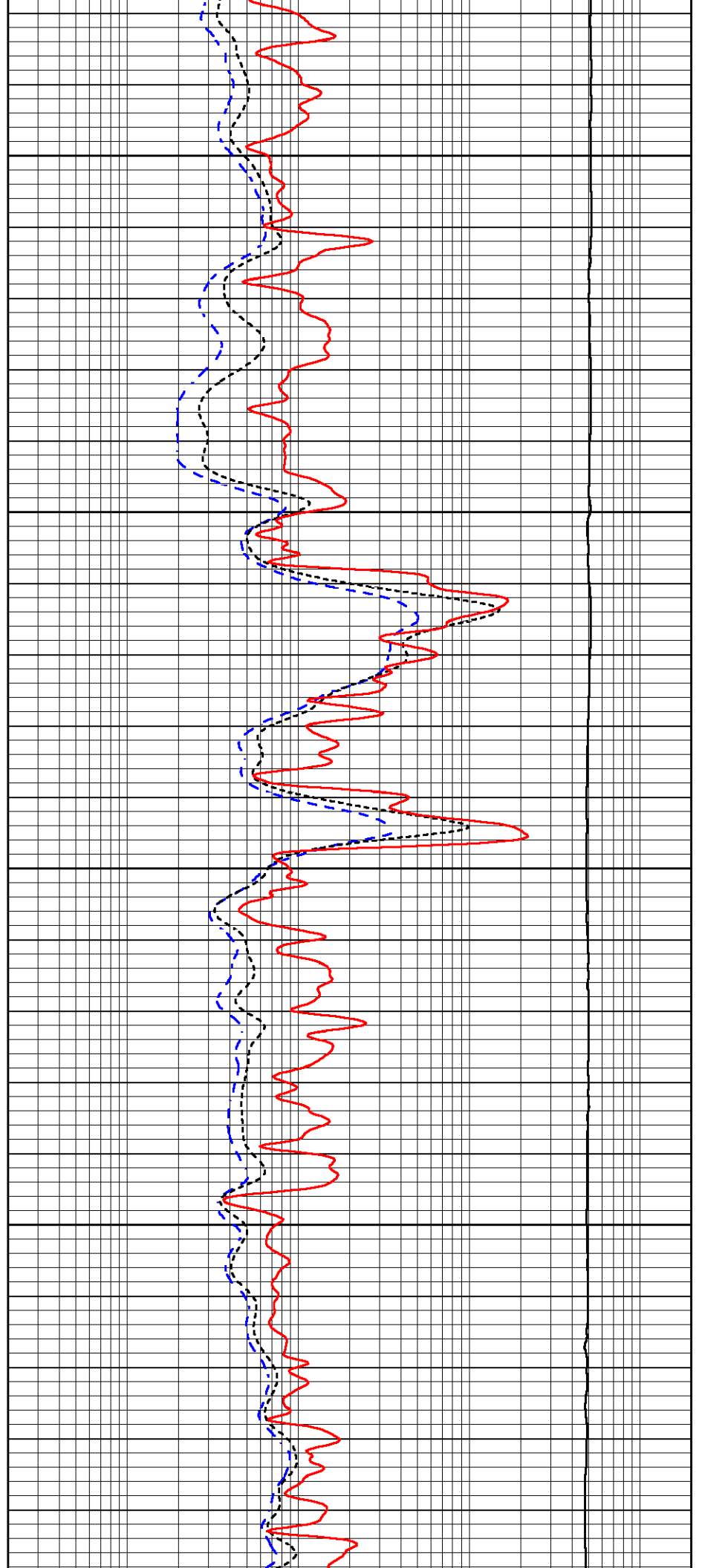


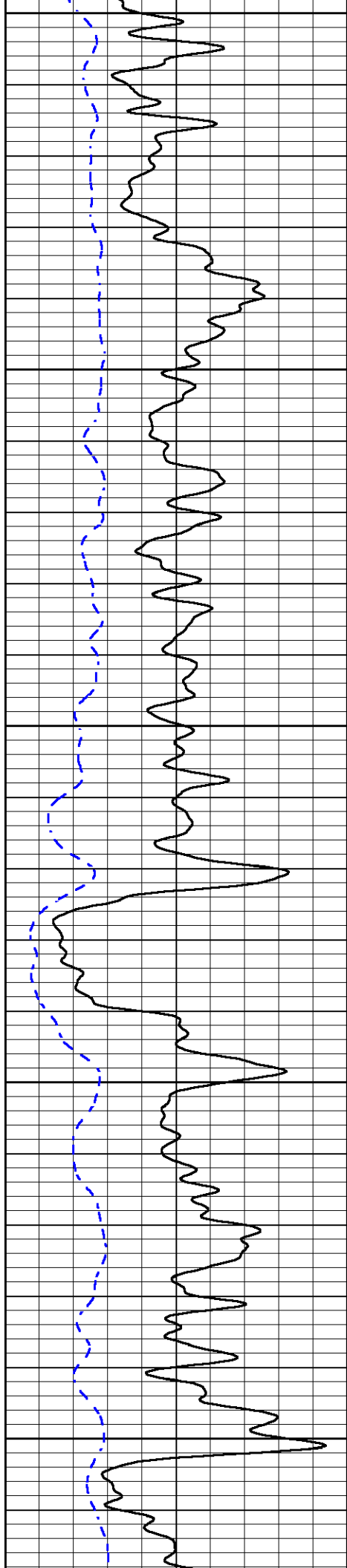
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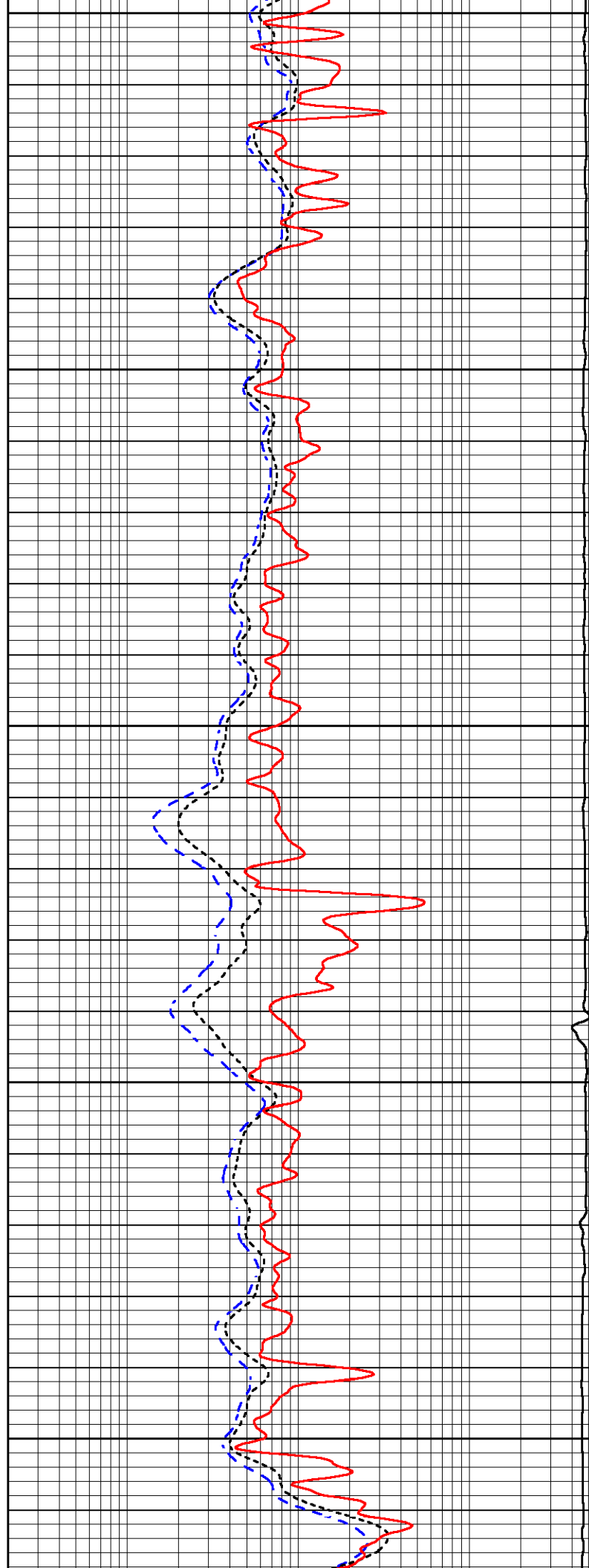
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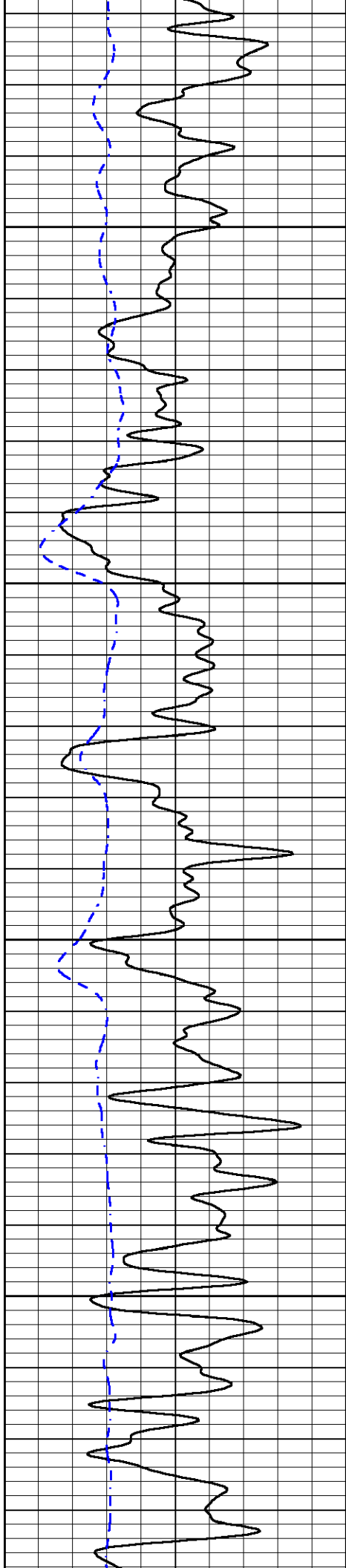
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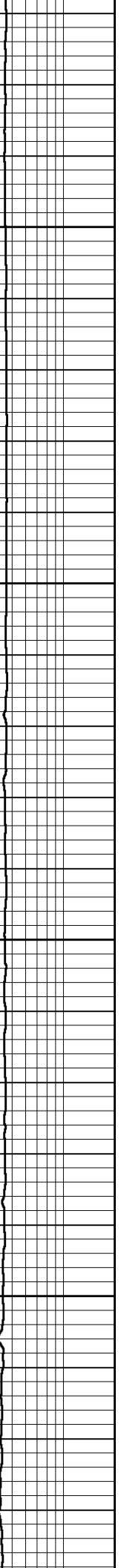
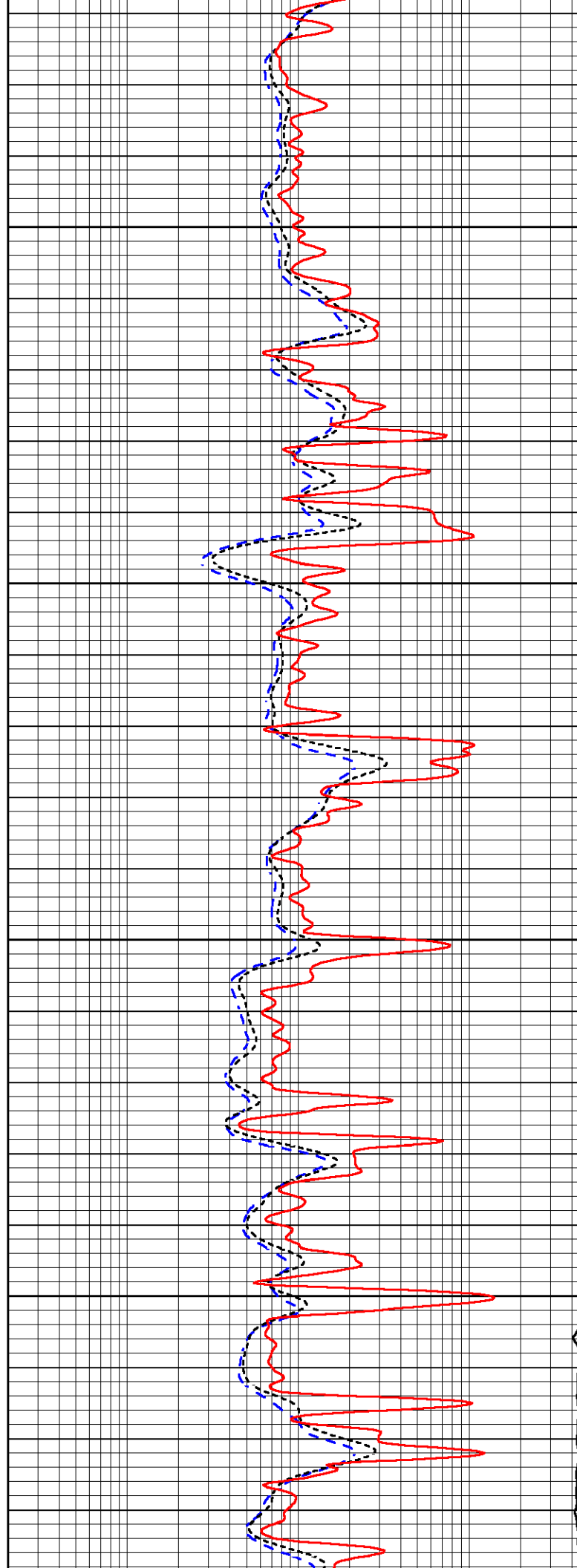


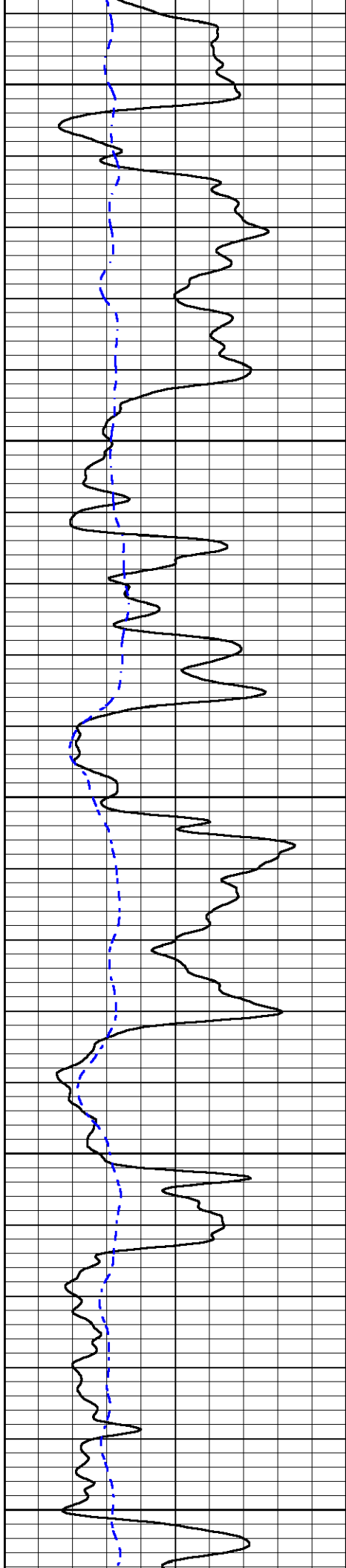
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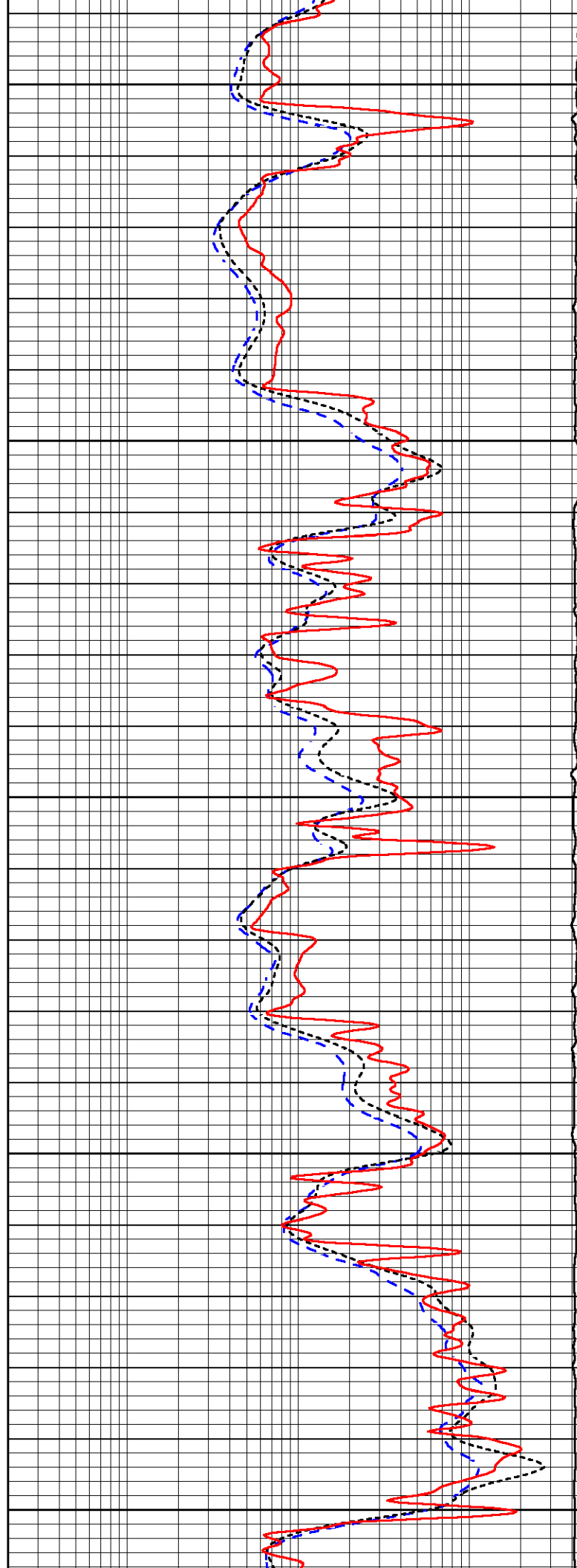
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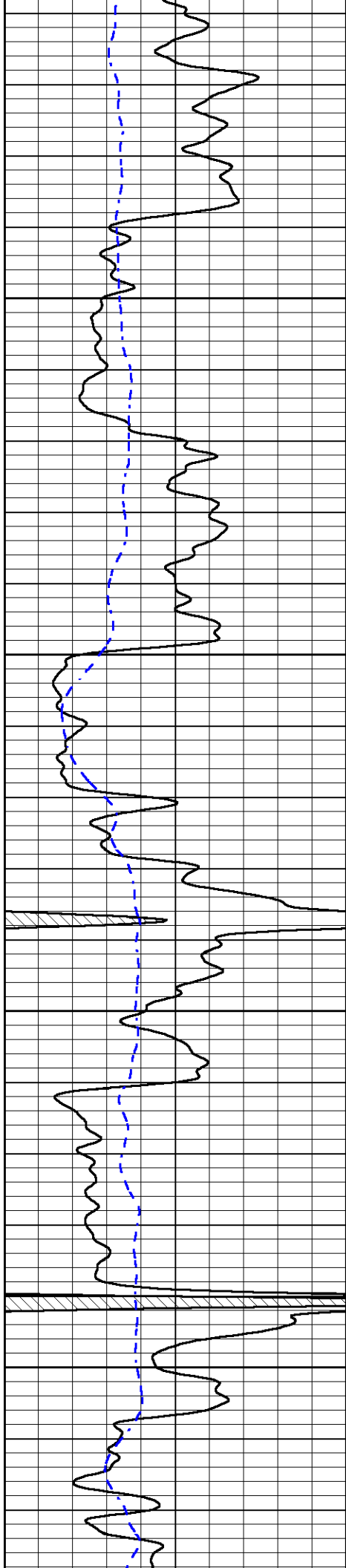
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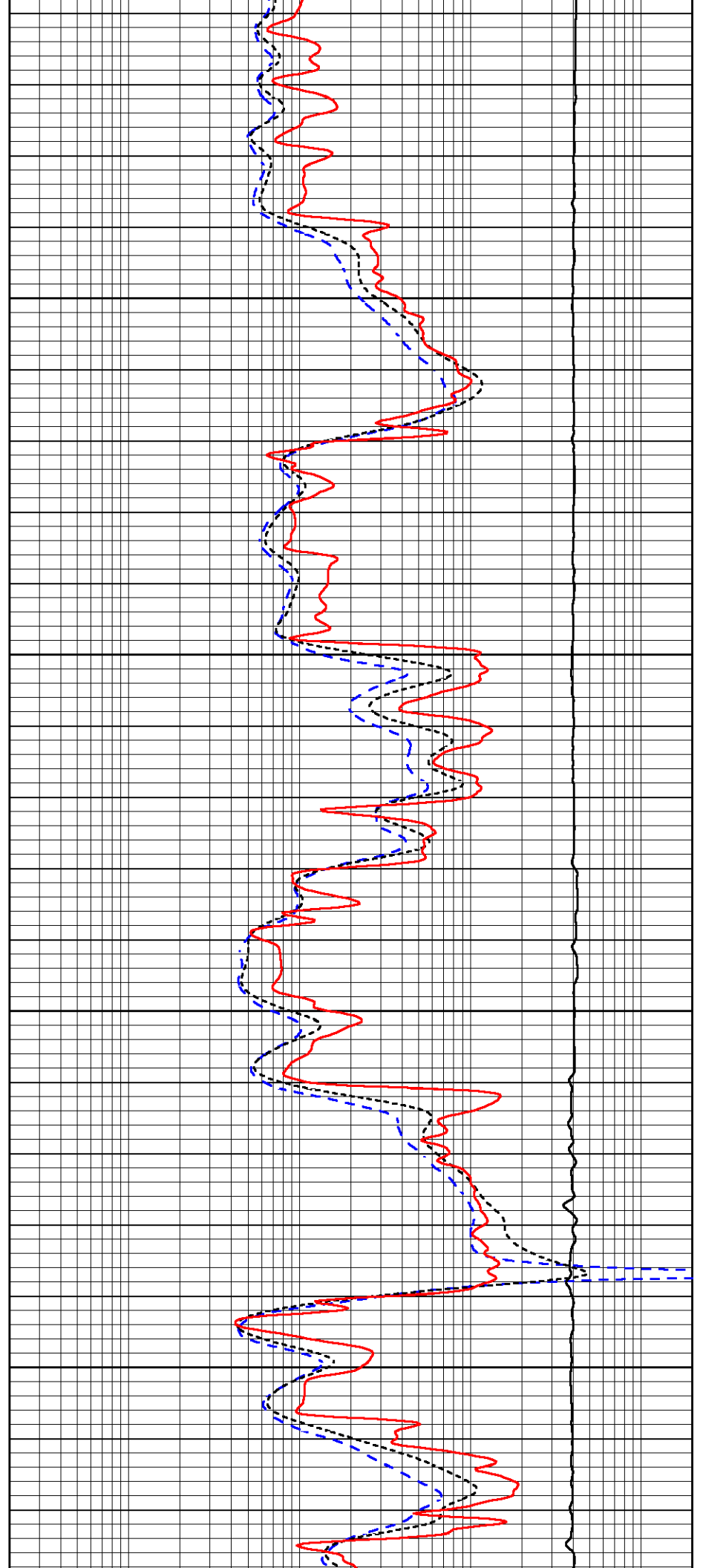


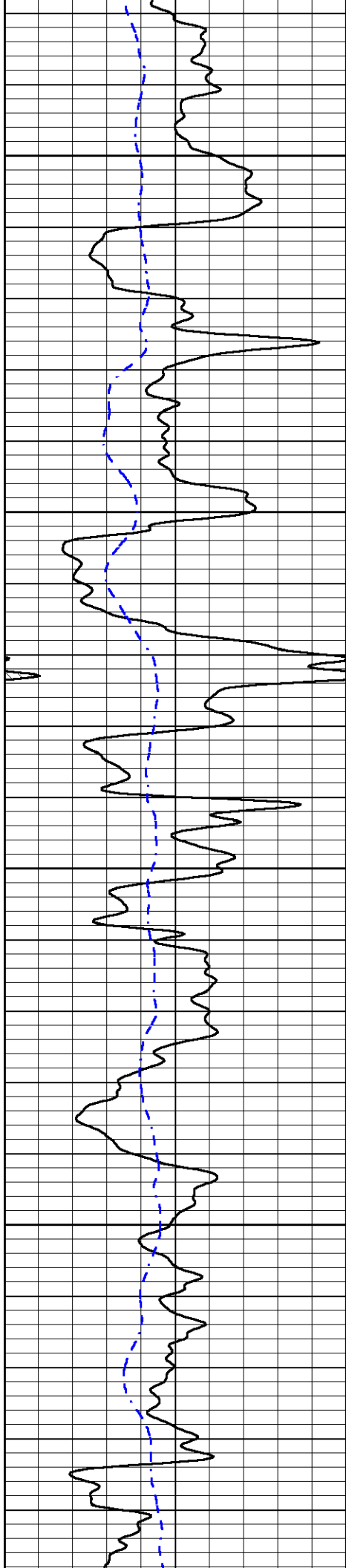
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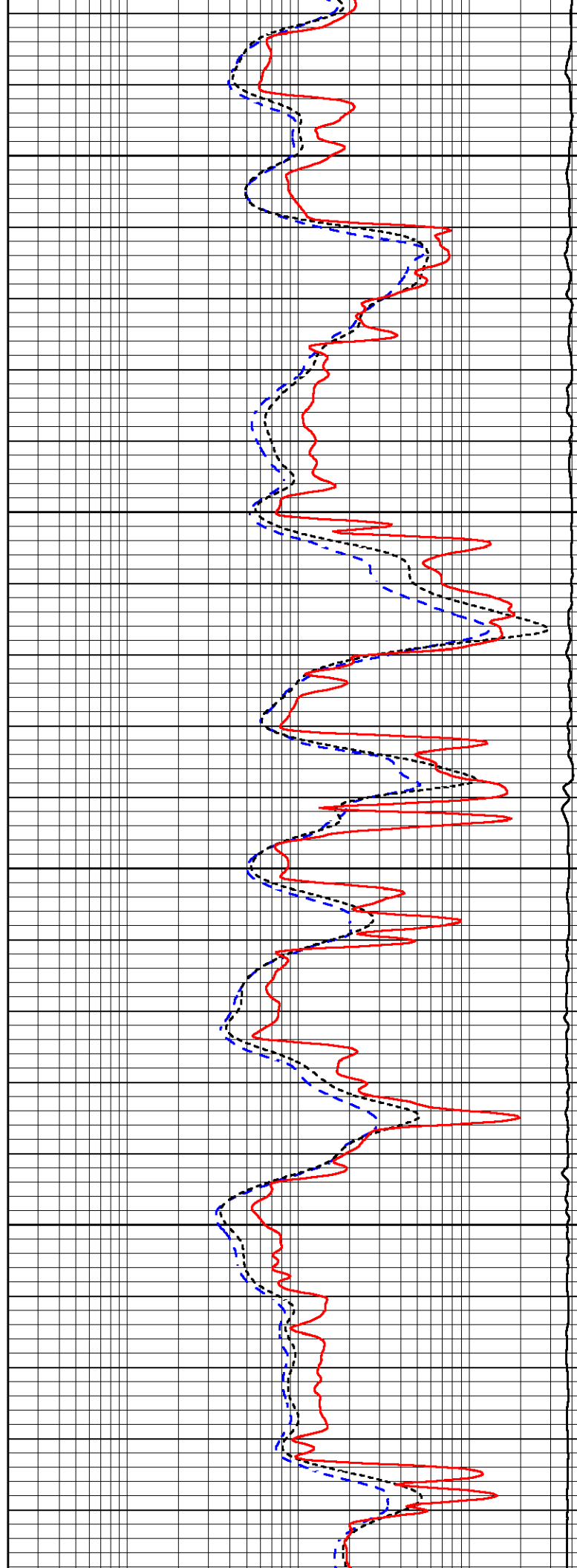


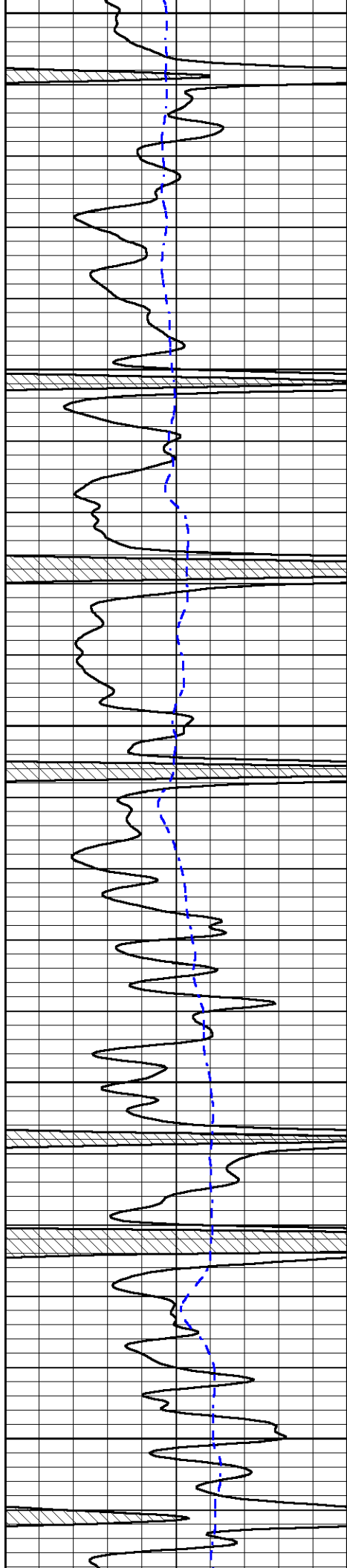
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4600

4650

4700





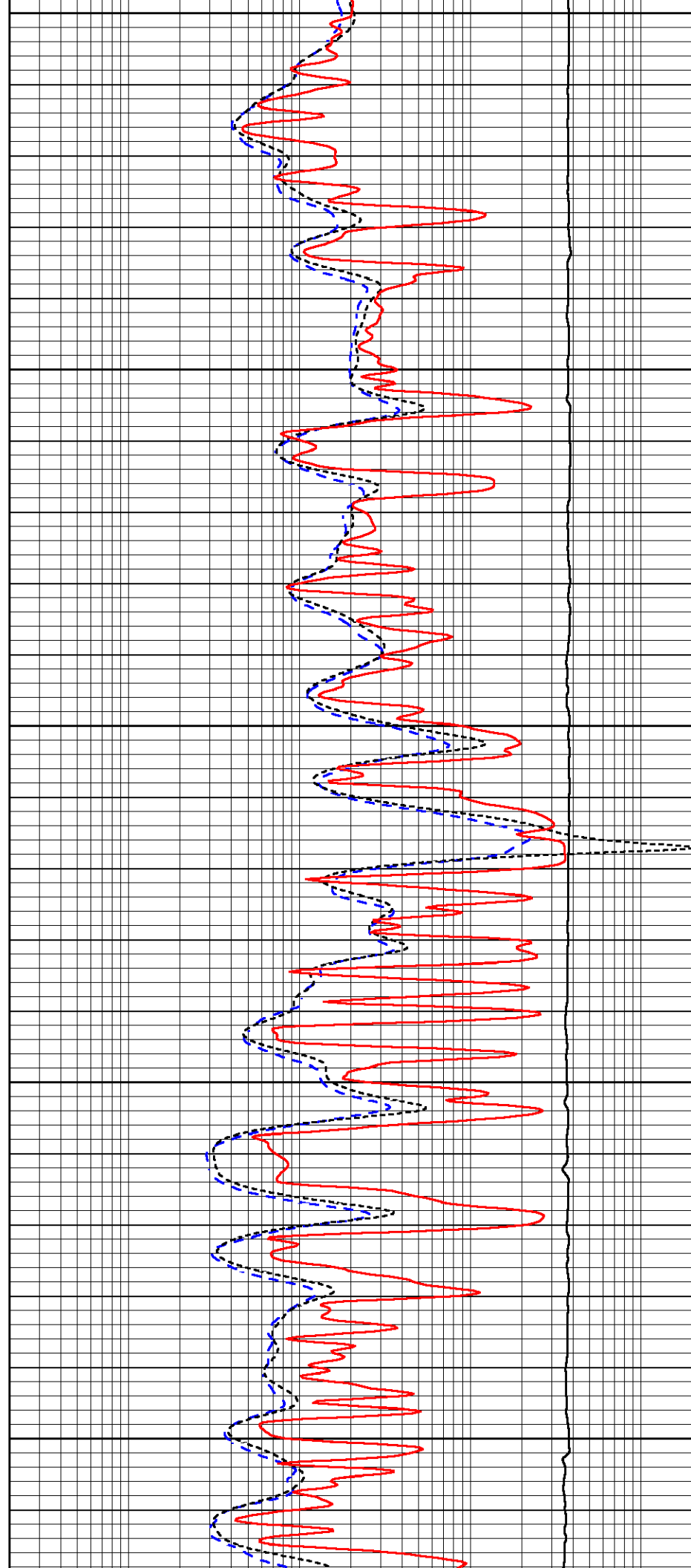
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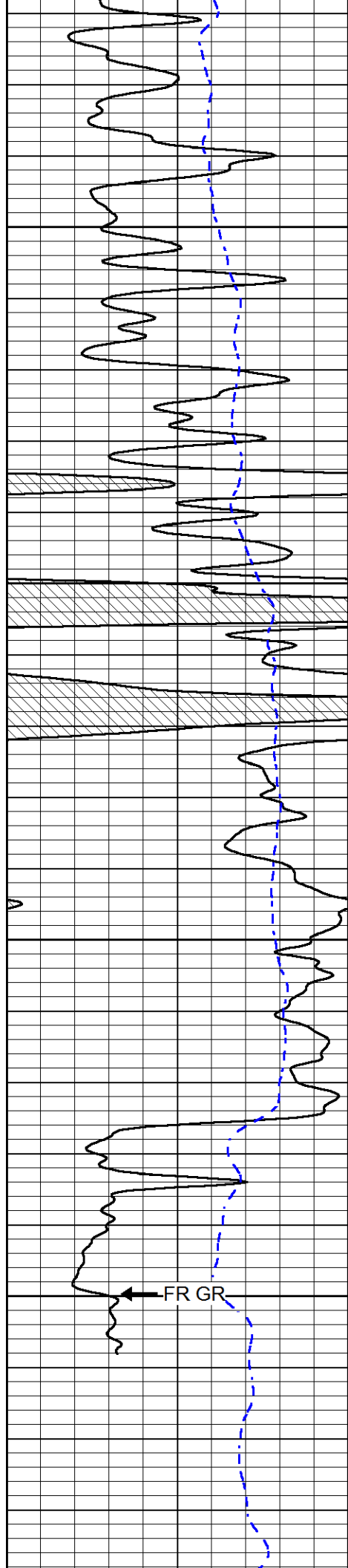
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4850

4900

4950





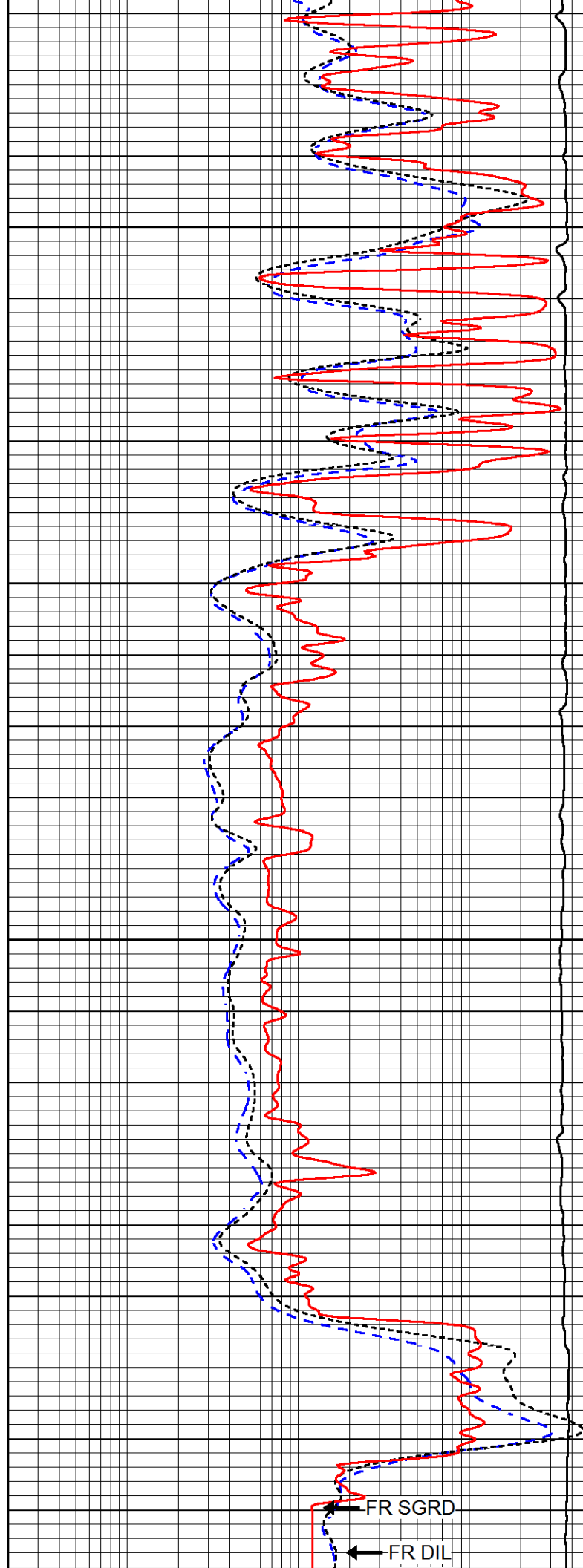
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5050

5100

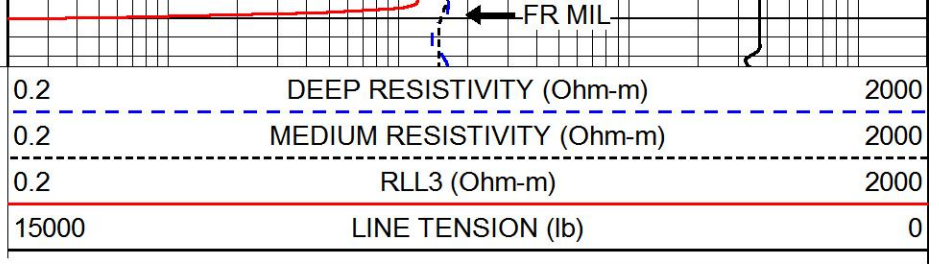
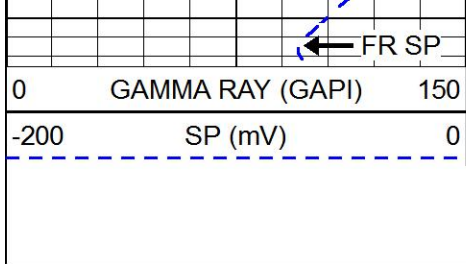
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FR GR



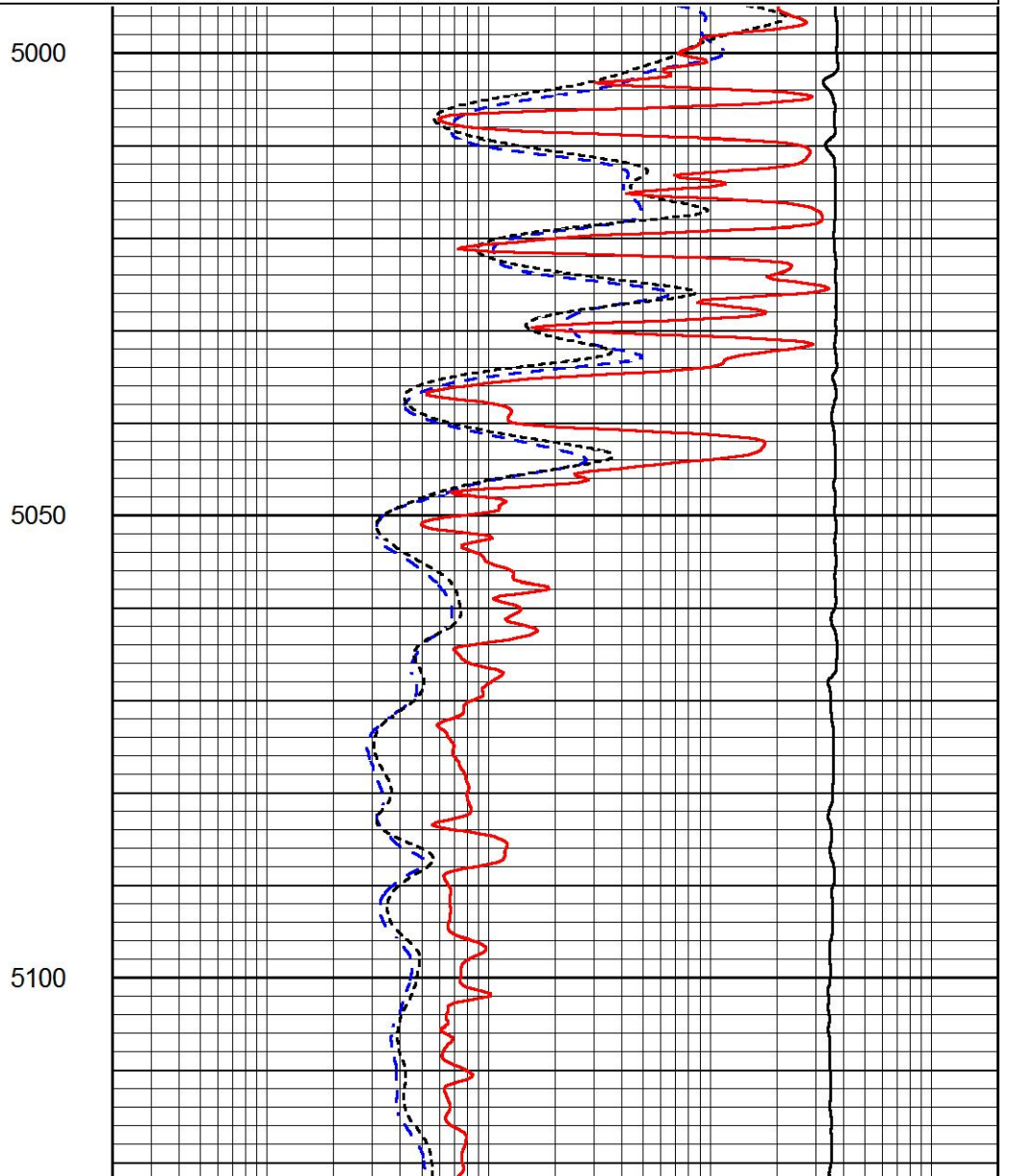
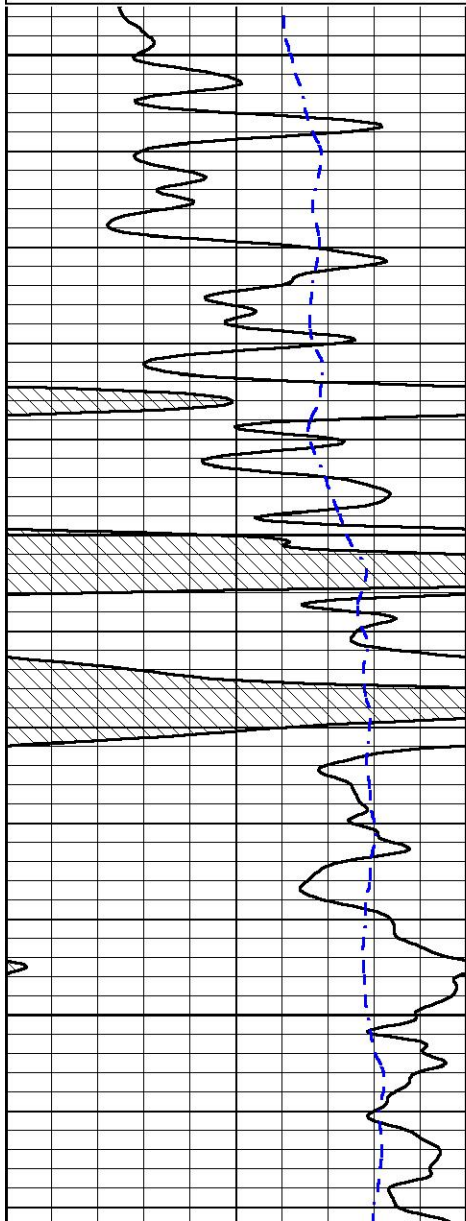
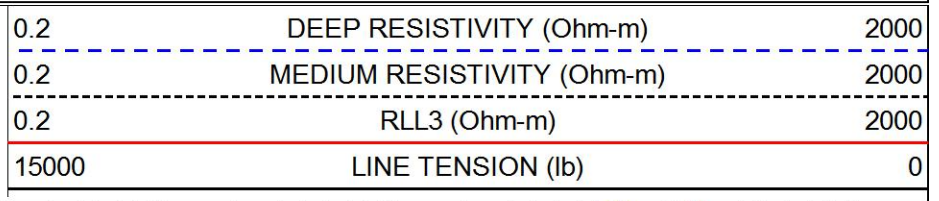
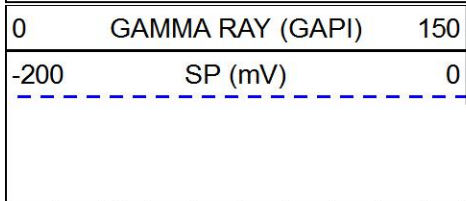
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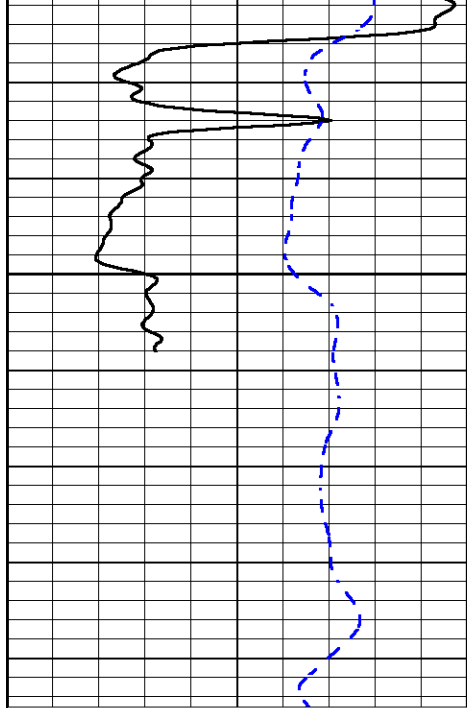
FR DIL



REPEAT SECTION

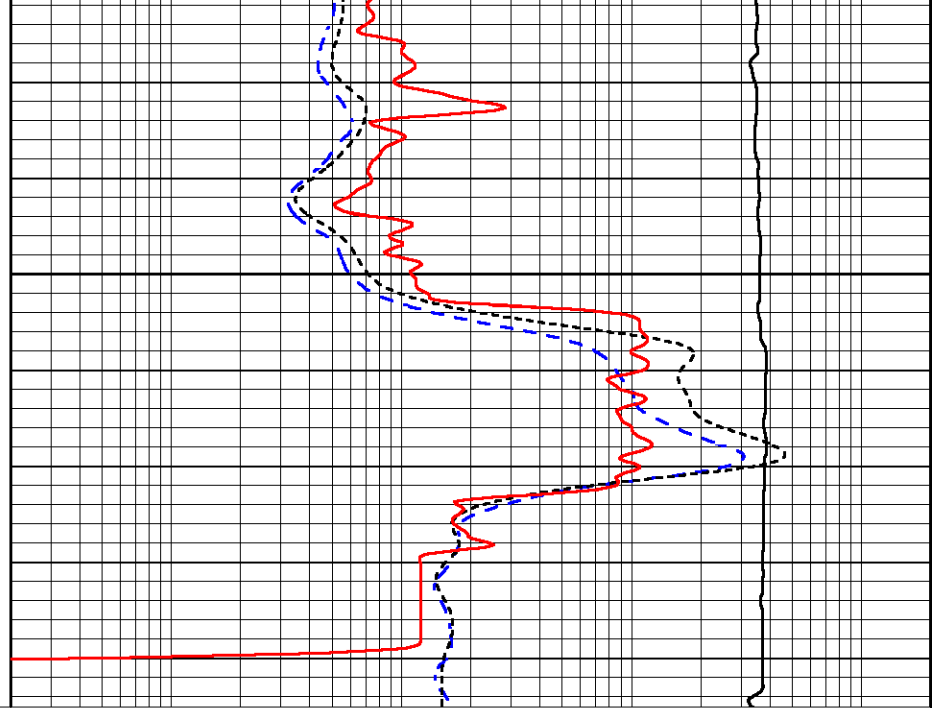
Database File murfin_sharp_c_1_6.db
Dataset Pathname stackml/pass2.1
Presentation Format dil
Dataset Creation Mon Mar 09 00:24:14 2020
Charted by Depth in Feet scaled 1:240





5150

0	GAMMA RAY (GAPI)	150
-200	SP (mV)	0



0.2	DEEP RESISTIVITY (Ohm-m)	2000
0.2	MEDIUM RESISTIVITY (Ohm-m)	2000
0.2	RLL3 (Ohm-m)	2000
15000	LINE TENSION (lb)	0

Calibration Report

Database File murfin_sharp_c_1_6.db
 Dataset Pathname stackml/pass3.1
 Dataset Creation Mon Mar 09 01:24:08 2020

Dual Induction Calibration Report

Serial-Model: 55-222-M&W
 Calibration Performed: Tue Dec 10 05:11:10 2019

Loop:	Readings		References			Results	
	Air	Loop	Air	Loop		Gain	Offset
Deep	167.000	835.000	0.000	255.800	mmho/m	0.500	-41.000
Medium	0.000	1348.000	142.000	255.800	mmho/m	0.370	-15.000

Microlog Calibration Report

Serial-Model: UDM-01-PSI UDM ML
 Performed: Fri May 31 06:10:42 2019

	Readings		References			Results	
	Zero	Cal	Zero	Cal		m	b
Normal	0.0000	1.0000	0.0000	1.0000	Ohm-m	25000.0000	-1.8000
Inverse	0.0000	1.0000	0.0000	1.0000	Ohm-m	25000.0000	-1.5000
Caliper	1.0019	1.2642	8.0000	22.0000	in	53.3774	-47.4000

Compensated Density Calibration Report

Serial-Model: 934-229-M&W
 Source / Verifier: 21170B /

Master Calibration

	Density		Far Detector	Near Detector	
Magnesium	1.755	g/cc	3391.68	2392.26	cps
Aluminum	2.670	g/cc	645.86	1568.99	cps
Spine Angle = 75.73			Density/Spine Ratio = 0.535		
	Size		Reading		
Small Ring	4.00	in	1.39		
Large Ring	14.00	in	1.04		

Compensated Neutron Calibration Report

Serial Number: tk10-MW
 Tool Model: M&W
 Calibration Performed: Wed Nov 16 11:21:36 2016

Detector	Readings	Target	Normalization
Short Space	6240.00 cps	1000.00 cps	1.6025
Long Space	460.00 cps	1000.00 cps	1.9500

Gamma Ray Calibration Report

Serial Number: 89-M&W
 Tool Model: M&W
 Calibration Performed: Tue Dec 10 05:11:34 2019

Calibrator Value: 1000.0 GAPI

Background Reading: 0.0 cps
 Calibrator Reading: 6.2 cps

Sensitivity: 0.5200 GAPI/cps



PIONEER

Pioneer Energy Services

Company MURFIN DRILLING COMPANY, INC.
 Well SHARP 'C' #1-6
 Field UNNAMED
 County CHEYENNE
 State KANSAS